LUCM and LUCMT
Multifunction Control Unit
User Guide

03/2008

1743237

a brand of Schneider Electric

Telemecanique

www.telemecanique.com

Table of Contents

Safety Information 5

About the Book 7

Chapter 1 Installation 9

Installation of the LUCM or LUCMT Multifunction Control Unit 9
General 11
Overview of the Multifunction Control Unit 13
Installation and service temperature 16
Connection 18

Chapter 2 Quick start 19

At a Glance 19
Actions for quick set-up 20
Default settings and optional values of the LUCM 22
Default Settings and Optional Values of the LUCMT 26

Chapter 3 Detailed Startup and Adjustments During Use 31

Detailed Startup of the LUCM or LUCMT Multifunction Control Unit. 31
Organization of the interface 33
Power up and operating modes 36
‘Config Menu’ Program 39
‘Main Menu’ program 46
1_Reference sub-program 48
Sub-program 2_Display. 50
Sub-Program 3_Setup. 52
Sub-Program 4_AdvSetup 58
Sub-Program 5_CommSetup 71
Sub-program 6_Module. 74
Sub-program 7_Statistics 76
Sub-program 8_Password. 79
Start-up Phase 82

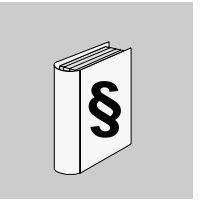
Chapter 4 Warning and fault management 85
At a Glance 85
Warning Management 86
Fault Management 88

Chapter 5 Additional information. 93
At a Glance 93
Thermal trigger and reset graphs. 94
Powersuite Firmware Workshop 101
Technical Characteristics. 103

Glossary 107

Index 109

Safety Information



Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result** in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, **can result** in death, serious injury, or equipment damage.

⚠ CAUTION

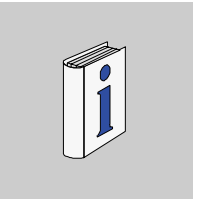
CAUTION indicates a potentially hazardous situation, which, if not avoided, **can result** in injury or equipment damage.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

© 2008 Schneider Electric. All Rights Reserved.

About the Book



At a Glance

Document Scope

This guide describes the implementation, features, and operation of multifunction control units. By convention, they are called LUCM and LUCMT:

LUCM (or LUCM••)	represents LUCM••BL, i.e., LUCMX6BL, LUCM1XBL, LUCM05BL, LUCM12BL, LUCM18BL and LUCM32BL
LUCMT (or LUCMT••)	represents LUCMT1BL

Scope of application: Installers, design offices, maintenance personnel.

Validity Note

Schneider Electric cannot be held responsible for any errors in this document. Please contact us if you have any suggestions for improvements or modifications, or if you have found any errors in this publication.

No part of this document may be reproduced in any form or by any means, electronic or mechanical, including photocopying, without the express written permission of Schneider Electric.

The data and illustrations found in this guide are not contractually binding. We reserve the right to modify our products in line with our policy of continuous product development. The information given in this document may be modified without notice and must not be interpreted as binding on the part of Schneider Electric

Related Documents

Title of Documentation	Reference Number
LUCM/LUCMT/LUCBT/LUCDT Control Units - Instruction Sheet	AAV40504
LU•B/LU•S• TeSys U Starters - Instruction Sheet	1629984
LUTM• TeSys U Controller - User Guide	1743233
LUTM• TeSys U Controller - Instruction Sheet	1743236

You can download these publications and other technical data from our website at the following address: ww.telemecanique.com.

Product Related Warnings

⚠ WARNING

- All relevant local safety regulations must be followed when installing and using this product. For safety reasons, and to ensure conformity with the documented system data, only the manufacturer is authorized to repair the components.
- Where the PLCs are used for applications with technical security requirements, the appropriate instructions must be followed.
- Failure to use the Schneider Electric software or the approved software with our products may result in injury, damage to equipment or malfunction.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

User Comments

We welcome your comments about this document. You can reach us by e-mail at techpub@schneider-electric.com

Installation

1

Installation of the LUCM or LUCMT Multifunction Control Unit

⚠ WARNING

RISK OF UNINTENDED OPERATION

These devices must be installed, configured, and used by qualified personnel only.
Users must follow the recommendations, standards, and regulations in force.
Check the function settings before starting the motor.
Do not damage or modify the devices.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION

DATA TRANSMISSION IN THE TIME ALLOWED IS NOT GUARANTEED

Only use the serial link for sending information that is not critical for the application.
Data concerning the statuses and values of load currents for the motor-starter are sent with a certain delay. As a result, this information must not be used when performing safety measures and emergency stops.
Information such as Start direction 1 and direction 2, Stop should not be used in safety circuits and emergency stops.

Failure to follow these instructions can result in injury or equipment damage.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
General	11
Overview of the Multifunction Control Unit	13
Installation and service temperature	16
Connection	18

General

Multifunction control units are referenced according to the bases they are installed on:

LUCM	for LUCM••BL units mounted on a power base (LU•B•• or LU•S••), i.e. LUCMX6BL, LUCM1XBL, LUCM05BL, LUCM12BL, LUCM18BL and LUCM32BL
LUCMT	for LUCMT1BL units mounted on a control base (LUTM••)

The LUCM multifunction control unit controls, protects, and monitors the following TeSys U products:

- LU•B•• starter-controllers with built-in short-circuit protection device
- LU•S•• starters without built-in short-circuit protection device

Note: LUCM multifunction control units must be used with alternating current motors only.

The LUCMT multifunction control unit only protects and monitors the following TeSys U products:

- LUTM•• controllers

Note: LUCMT multifunction control units must be used with three-phase alternating current motors only.

Protection Functions

The LUCM or LUCMT multifunction control units perform the following protection functions:

- Protection against over-currents (protection not provided by LUCMT)
- Protection against thermal overloads, with choice of trip class from 5 to 30
- Protection against ground faults
- Protection against phase imbalances
- Protection against mechanical jams during or after the start-up phase.
- Protection against idling
- Tripping of the starter via an external signal (as an option)

Warning Functions

The LUCM or LUCMT multifunction control units include a warning associated with each protection function.

The warning level can be configured and is independent from the protection trip level.

Diagnostic Functions

The LUCM or LUCMT multifunction control unit records and displays:

- The number of operating hours for the motor
- The number of starts
- The number of trips
- The cause of the trip

For the last five trips, the multifunction control unit records the status of the motor-starter at the time of the trip (value of currents, thermal status, and trip type).

Configuration and Monitoring

The protection, warning, and diagnostic functions may be configured and monitored:

Locally, using the built-in display and keyboard

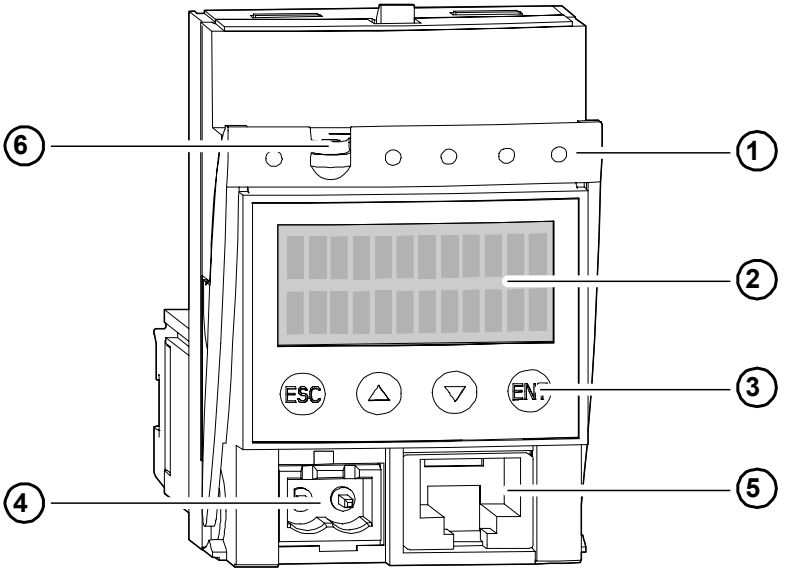
Remotely, using:

- A PC with the PowerSuite software (VW3A8104)
- A pocket PC with the PowerSuite software (VW3A8102)
- An RJ-45 communication port, Modbus RS 485
- An XBT NU 400 communication terminal mounted on a cabinet door

Overview of the Multifunction Control Unit

Description of the Multifunction Control Unit

Front panel of the multifunction control unit:



1 Locking and removal handle

2 Built-in LCD display (2 lines/12 characters)

3 4-key keypad

4 24 V auxiliary power supply ⎓ **(sealed connector on LUCMT)**

5 RJ-45 communication port, Modbus RS 485

6 Option to seal the locking handle

RS 485 Serial Communication Port

The RS 485 serial communication port, on the front panel, may be used to connect:

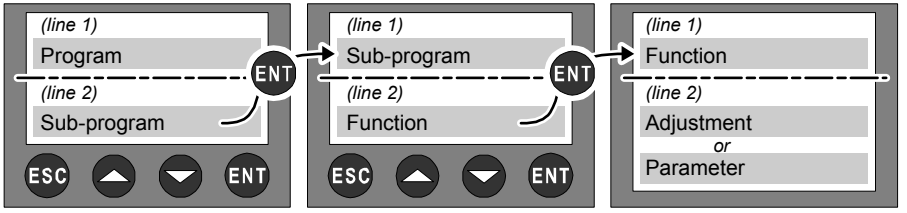
- A PC with the PowerSuite software (VW3A8104)
- A pocket PC with the PowerSuite software (VW3A8104)
- An RJ-45 communication port, Modbus RS 485
- An XBT NU 400 communication terminal mounted on a cabinet door

Display and Keypad

The built-in display and keypad are used as follows:

In "**Run**" mode	To display the value of one or more previously selected parameters If no key is pressed for 5 seconds, the display stops scrolling
In "**Off**" mode (LUCM••BL)	To display the status of the motor-starter (with external 24 V DC power supply)

The multifunction control unit has a 2-line display and a 4-key keypad allowing users to navigate through programs, sub-programs, functions, and parameters or settings.

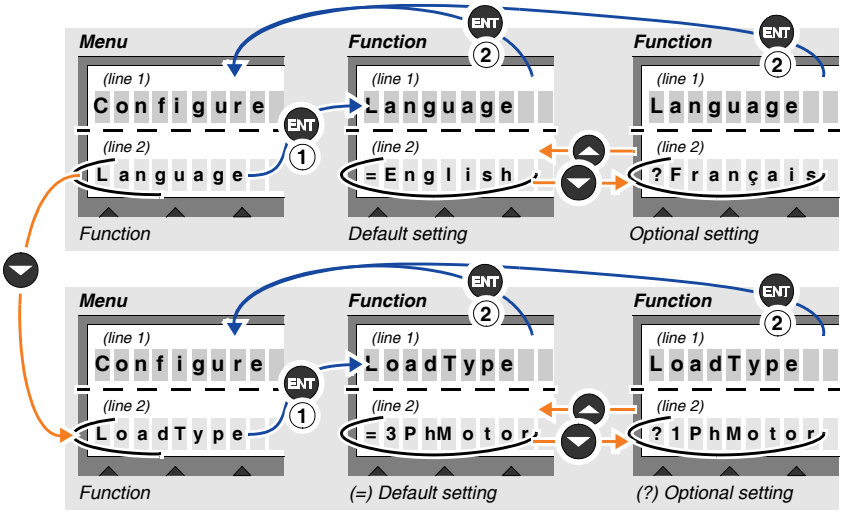


Navigation in Programs

Function of the four keys on the keypad:

ESC	Move up one level in the menu. ***The ESC key does not save any settings***.	You must press this key several times to return to the program.
▲ ▼	Browse in: - a program => sub-programs - a sub-program=> functions - a function => settings	Some sub-programs include only functions and their settings. Others include functions with several parameters and their settings.
	Browse available settings.	The "**=**" sign precedes a factory setting or a user-defined setting. The "**?**" sign precedes available settings.
	Increase or decrease the value of the displayed setting.	To quickly increase or decrease the value of a setting, hold down the corresponding key.
ENT	**1** Move down one level in the program. **2** Confirm and save the displayed setting.	Once you have saved the setting: ● The "**?**" sign is replaced by "**=**". ● The setting is displayed for 2 seconds, then the display returns automatically to the next highest level.

Examples of navigation:

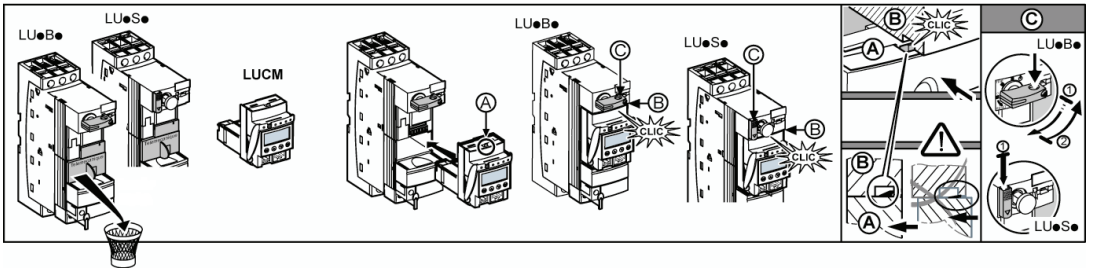


Installation and service temperature

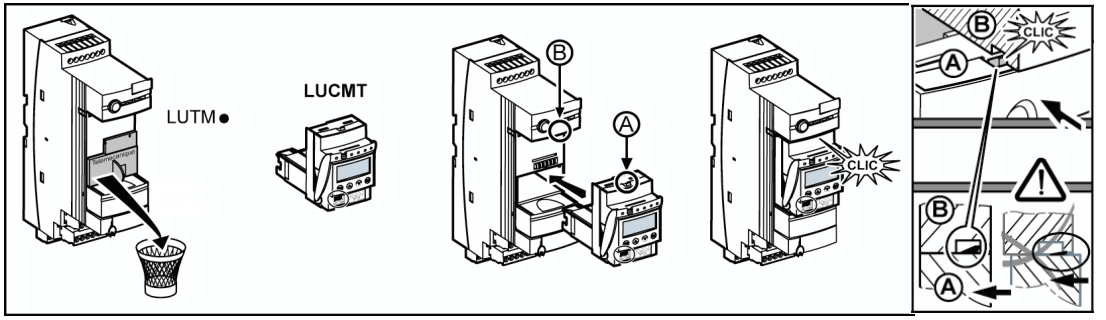
Installation

Once installed in the base, the multifunction control unit locks the module. The multifunction control unit must be installed before installing or uninstalling a module.

Installation in a power base:

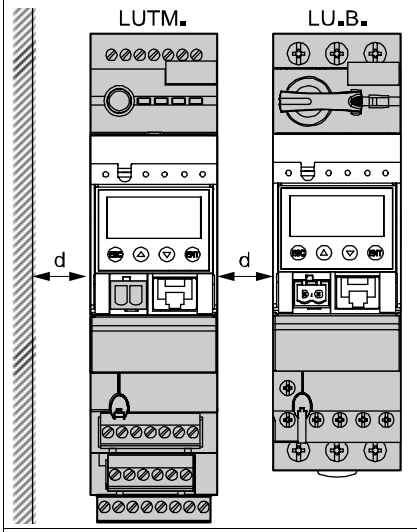


Installation in a controller base:



Service temperature

The multifunction control unit has internal temperature monitoring functions that cannot be disabled.



The warning message "Warn-IntTmp" appears as soon as the internal temperature exceeds 80° C.
At 90° C, the multifunction control unit triggers the starter and the message "Internet Trip" is displayed.
(see *Warning Management, p. 86*)

The value of the internal temperature is stored in register 472. It may be monitored via the RS 485 communication port:

- locally using the PowerSuite program,
- remotely via the Modbus link.

LUTM•		LU•B• and LU•S•	
Distance to be maintained	Ambient temperature	Distances to be maintained	Ambient temperature
d = 0 mm (0 in.)	65° C (149° F)	d = 0 mm (0 in.)	45° C (113° F)
		d ≥ 9 mm (0.35 in.)	55° C (131° F)
		d ≥ 20 mm (0.75 in.)	60° C (140° F)

Connection

Connecting the LUCM

The LUCM multifunction control unit has two 24 V DC power supplies:

- **The supply for the control circuit**, accessible only via the A1/A2 terminals on the power base
- **The auxiliary power supply**, on its front panel.

⚠ WARNING

LOSS OF POWER IN EVENT OF POWER CUT

The devices that cut the power must be connected to terminal A1 (+) on the control circuit.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Note: Powering off then powering on the control circuit by terminals A1/A2, without the auxiliary power supply, resets the parameters of the **48_Jam** function (message: Off-Jam) by authorizing the closing of the power poles (see *Internal or External Environment-related Faults, p. 90*).

The auxiliary power supply is used for the following operations:

- Initial configuration and adjustment before installing the power base or before connecting the power supply of the control circuit to the A1/A2 terminals
- Remote and automatic reset functions with a 3-wire control
- Changes to settings during "**Off**" or "**LastTrip**" modes
- Display of fault types or statistics during "**Off**" or "**LastTrip**" modes
- Communication with the multifunction control unit during "**Off**" or "**LastTrip**" modes
- Use of a function module (communication or application)

Note: Input A2 of the control circuit is internally connected to the (-) input terminal of the auxiliary power supply. If the polarity of the A1/A2 terminals is inverted, the multifunction control unit triggers an internal fault #62 (see *Fault Acknowledgement, p. 92*) to acknowledge the fault.

Connecting the LUCMT

The LUCMT multifunction control unit has only one 24 V DC power supply that is directly connected to the 24 V DC power supply of the LUTM•• controller base.

The power supply of the controller base is required for configuration and adjustments.

Note: Powering off then powering on this 24 V DC power supply resets the parameters of the **48_Jam** function (message: Off-Jam, see *Motor Safety Protection Faults, p. 89*).

Quick start

2

At a Glance

Use the Quick start section if you are already familiar with the product. Otherwise, see the detailed start procedure.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Actions for quick set-up	20
Default settings and optional values of the LUCM	22
Default Settings and Optional Values of the LUCMT	26

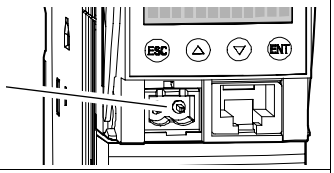
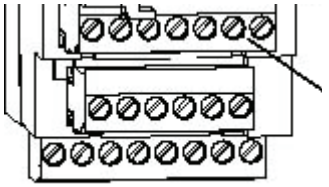
Actions for quick set-up

At a Glance

A quick set-up of the multifunction control unit implies action on:
- the electrical supply,
- the configuration.

Electrical supply

The electrical supply varies according to the type of control unit.

LUCM	Connect the auxiliary power supply (24 VDC) of the multifunction control unit. *==> The control unit may be inside or outside the Power base.*	
LUCMT	Supply of the LUTM•• Controller base (24 VDC) *==> The multifunction control unit must be installed in the LUTM•• Controller base*	

Configuration during commissioning

Configure the multifunction control unit via the following steps:

Step	Action	Display	
1	Press the **ENT** key to start the configuration. The first function of the **Config Menu** program is displayed.	Config Menu	
		. . .	
		Config Menu	
		Language	
2	Enter the functions that define the profile of the multifunction control unit. The functions vary according to the Base: - LUCM••BL: **Language**, **LoadType**, **Base**, **AuxFan** - LUCMT1BL: **Language**, **AuxFan**, **CT_Ratio**	Language	
		= English	
		Language	
		? Français	
		.....	
3	Display the **End Config** function. Confirm the configuration (? Yes) via the **ENT** key, to access the **Main Menu** program.	Config Menu	
		End Config	
		End Config	
		= No	
		? Yes	
4	In the **Main Menu** program, use the (down arrow) key to scroll the sub-programs until **3_Setup**. Press the **ENT** key to enter the setup.	Main Menu	
		1_Reference	
		Main Menu	
		3_Setup	
5	Press the **ENT** key to access the parameters of the **31_FLASet** function.	3_Setup	
		31_FLASet	
6	The value displayed corresponds to the control unit installed (e.g. LUCM05BL). Use the (up arrow) key to select the value of the nominal current at full load corresponding to the reference of the installed product.	31_FLASet	
		= 1.25 A	
		31_FLASet	
		? 2.00 A	

Default settings and optional values of the LUCM

Programs, sub-programs and functions of the LUCM multifunction control unit:

Program	Sub-program	Function	Parameter	Factory setting or profile	Optional values
Config Menu	-	Language	-	= English	? Français ? Español ? Deutsch ? Italiano
		LoadType	-	= 3 PhMotor	? 1 PhMotor
		Base	-	= SelfProtStr	? Starter
		AuxFan	-	= No	? Yes
		LR Conf * *(* from versions V3.x onwards)*	-	= Remote	? Local
		End Config	-	= No	? Yes
Menu	1_Reference	11_Catalog (see *31_FLASet for LUCM, p. 53*).	-	LUCMX6BL	According to the reference of the multifunction control unit
		12_Firmware	-	Rev: xx.xx	
		13_FLA Range (see *31_FLASet for LUCM, p. 53*).	-	0.15 A to 0.6 A (Min to Max)	
		14_LoadType	-	= 3 PhMotor	(read only) configured in **Config Menu**
		15_AuxFan	-	= No	
		16_Base	-	= SelfProtStr	
	2_Display	21_AvCurrent	-	= Yes	? No
		22_ThermCap	-	= No	? Yes
		23_L1Current	-	= No	? Yes
		24_L2Current	-	= No	? Yes
		25_L3Current	-	= No	? Yes
		26_GFCurrent	-	= No	? Yes
		27_LastTrip	-	= No	? Yes
		28_PhaseImb	-	= No	? Yes

Program	Sub-program	Function	Parameter	Factory setting or profile	Optional values
Menu	3_Setup	31_FLASet According to the reference of the multifunction control unit	LUCMX6BL	= 0.15 A	? 0.15 to 0.6
			LUCM1XBL	= 0.35 A	? 0.35 to 1.4
			LUCM05BL	= 1.25 A	? 1.25 to 5
			LUCM12BL	= 3 A	? 3 to 12
			LUCM18BL	= 4.5 A	? 4.5 to 18
			LUCM32BL	= 8 A	? 8 to 32
		32_TestTrip	-	= No	? Yes
		33_Pause	-	= No	? Yes
		34_Language	-	= English	? Français ? Español ? Deutsch ? Italiano
	4_AdvSetup	41_TripClass	-	= 5	? 5 to 30
		42_ResetMode	-	= Manual	? Remote/Ent ? Auto
		43_RstAdjust	ResetTime	= 120 s	? 1 to 1000
			ResetLevel	= 80% (Capacity)	? 35 to 95
		44_MagTrip	-	= 1420% FLA	? 300 to 1700
		45_OLWarning	Warning	= On	? Off
			Warn Level	= 85% (Capacity)	? 10 to 100
		46_GroundFlt	Trip	= On	? Off
			TripTime	= 1.0 s	? 0.1 to 1.2
			TripLevel	= x A (30% FLA min)	? 20 to 500
			Warning	= On	? Off
			Warn Level	= x A (30% FLA min)	? 20 to 500
		47_PhaseImb	Trip	= On	? Off
			TripTimeStrt	= 0.7 s	? 0.2 to 20
			TripTimeRun	= 5	? 0.2 to 20
			TripLevel	= 10% IMB	? 10 to 30
			Warning	= On	? Off
			Warn Level	= 10% IMB	? 10 to 30

Program	Sub-program	Function	Parameter	Factory setting or profile	Optional values
Menu	4_AdvSetup	48_Jam	Trip	= On	? Off
			TripTime	= 5 s	? 1 to 30
			TripLevel	= 200% FLA	? 100 à 800
			Warning	= On	? Off
			Warn Level	= 200% FLA	? 100 to 800
		49_UndrLd	Trip	= On	? Off
			TripTime	= 10 s	? 1 to 200
			TripLevel	= 50% FLA	? 30 to 100
			Warning	= On	? Off
			Warn Level	= 50% FLA	? 30 to 100
		410_LongStrt	Trip	= On	? Off
			TripTime	= 10 s	? 1 to 200
			TripLevel	=100% FLA	? 100 to 800
			Warning	= On	? Off
			Warn Level	= 100% FLA	? 100 to 800
	5_CommSetup	51_Drop	-	= 1	? 1 to 247
		52_Baud	-	= 19200 bps	? 1200 to 19200
		53_Parity		= None	? Even
		54_Control	-	= On	? Off
		55_CommLoss	-	= Ignore	? Dropout ? Trip ? Warning
	6_Module	61_ID Clear	-	= Yes	? No
		62_Reference	Module	ID = 0	-
			Catalog	? (if ID = 0)	-
			Firmware	Rev: 0.00 (if ID = 0)	-
		63_ID Set	-	= 0	0 to 149
		64_Param dec	Parameter 1-10	= 00000	00000 to 65535
		65_Param hex	Parameter 1-10	= 0000	0000 to FFFF

Program	Sub-program	Function	Parameter	Factory setting or profile	Optional values
Menu	7_Statistics	71_Défaut 0	-	In case of a return to factory settings, the statistical data is erased (see *Sub-program 7_Statistics, p. 76*).	
		72_Trip1	-		
		73_Trip2	-		
		74_Trip3	-		
		75_Trip4	-		
		76_Totals	-		
	8_Password	81_Unlock	-	Passwd?	0000 - 9999
		82_Lock	-	New PSW?	0000 - 9999
		83_Rst Stats	-	= No	? Yes
		84_RstToDfts	-	= No	? Yes

Default Settings and Optional Values of the LUCMT

Programs, sub-programs and functions of the LUCMT multifunction control unit:

Program	Sub-prog.	Meaning	Parameter	Factory setting or profile	Optional values
Config Menu	-	Language	-	= English	? Français
		AuxFan	-	= No	? Yes
		CT_Ratio ***(no parameter with factory settings)*** One of the 9 parameters must be confirmed before you can exit the **Config Menu**	? 30:3	= No	? Yes (3.5 -10.5 A)
			? 30:2	= No	? Yes (5.2 -15.7 A)
			? 30:1	= No	? Yes (10.5 - 31.5 A)
			? 50:1	= No	? Yes (17.5 - 52.5 A)
			? 100:1	= No	? Yes (35 - 105 A)
			? 200:1	= No	? Yes (70 - 210 A)
			? 400:1	= No	? Yes (140 - 420 A)
			? 800:1	= No	? Yes (280 - 840 A)
			? Others	Parameters:	
				Primary Secondary Exter_Pass	1 to 65535 1 to 500 1 to 100
		LR Conf * *(* from versions V3.x onwards)*	-	= Remote	? Local
		End Config	-	= No	? Yes
Main Menu	1_Reference	11_Catalog (see *31_FLASet for LUCM, p. 53*).	-	LUCMT1BL	
		12_Firmware	-	Rev: xx.xx	
		13_FLA Range (see *31_FLASet for LUCM, p. 53*).	-	According to CT_Ratio (Min to Max)	
		15_AuxFan (read only)	-	= No	Configured in **Config Menu**

Program	Sub-prog.	Meaning	Parameter	Factory setting or profile	Optional values
Main Menu	2_Display	21_AvCurrent	-	= Yes	? No
		22_ThermCap	-	= No	? Yes
		23_L1Current	-	= No	? Yes
		24_L2Current	-	= No	? Yes
		25_L3Current	-	= No	? Yes
		26_GFCurrent	-	= No	? Yes
		27_LastTrip	-	= No	? Yes
		28_PhaseImb	-	= No	? Yes
		29_ONhours	-	= No	? Yes
	3_Setup	31_FLASet	LUCMT1BL	= x A (CT_Ratio)	? x.xx to x.xx A
		32_TestTrip	-	= No	? Yes
		34_Language	-	= English	? Français
	4_AdvSetup	41_TripClass	-	= 5	? 5 to 30
		42_ResetMode	-	= Manual	? Remote/Ent ? Auto
		43_RstAdjust	ResetTime	= 120 s	? 1 to 1000
			ResetLevel	= 80% (Capacity)	? 35 to 95
		45_OLWarning	Warning	= On	? Off
			Warn Level	= 85% (Capacity)	? 10 to 100
		46_GroundFlt	Trip	= On	? Off
			TripTime	= 1.0 s	? 0.1 to 1.2
			TripLevel	= x A (30% FLA min)	? 20 to 500
			Warning	= On	? Off
			Warn Level	= x A (30% FLA min)	? 20 to 500
		47_PhaseImb	Trip	= On	? Off
			TripTimeStrt	= 0.7 s	? 0.2 to 20
			TripTimeRun	= 5	? 0.2 to 20
			TripLevel	= 10% IMB	? 10 to 30
			Warning	= On	? Off
			Warn Level	= 10% IMB	? 10 to 30

Program	Sub-prog.	Meaning	Parameter	Factory setting or profile	Optional values
Main Menu	4_AdvSetup	48_Jam	Trip	= On	? Off
			TripTime	= 5 s	? 1 to 30
			TripLevel	= 200% FLA	? 100 to 800
			Warning	= On	? Off
			Warn Level	= 200% FLA	? 100 to 800
		49_UndrLd	Trip	= On	? Off
			TripTime	= 10 s	? 1 to 200
			TripLevel	= 50% FLA	? 30 to 100
			Warning	= On	? Off
			Warn Level	= 50% FLA	? 30 to 100
		410_LongStrt	Trip	= On	? Off
			TripTime	= 10 s	? 1 to 200
			TripLevel	=100% FLA	? 100 to 800
			Warning	= On	? Off
			Warn Level	= 100% FLA	? 100 to 800
	5_CommSetup	51_Drop	-	= 1	? 1 to 247
		52_Baud	-	= 19200 bps	? 1200 to 19200
		53_Parity	-	= None	? Even
		54_Control	-	= On	? Off
		55_CommLoss	-	= Ignore	? Dropout ? Trip ? Warning
	6_Module	61_ID Clear	-	= Yes	? No
		62_Reference	Module	ID = 0	-
			Catalog	? (if ID = 0)	-
			Firmware	Rev: 0.00 (if ID = 0)	-
		63_ID Set	-	= 0	0 to 255
		64_Param dec	Parameter 1-10	= 00000	00000 to 65535
		65_Param hex	Parameter 1-10	= 0000	0000 to FFFF

Program	Sub-prog.	Meaning	Parameter	Factory setting or profile	Optional values
Main Menu	7_Statistics	71_Trip0	-	In case of a return to factory settings, the statistical data is erased (see *Sub-program 7_Statistics, p. 76*).	
		72_Trip1	-		
		73_Trip2	-		
		74_Trip3	-		
		75_Trip4	-		
		76_Totals	-		
	8_Password	81_Unlock	-	Passwd?	0000 - 9999
		82_Lock	-	New PSW?	0000 - 9999
		83_Rst Stats	-	= No	? Yes
		84_RstToDfts	-	= No	? Yes

Detailed Startup and Adjustments During Use

3

Detailed Startup of the LUCM or LUCMT Multifunction Control Unit

This chapter presents the detailed startup of the LUCM and LUCMT, as well as the adjustments that can be made when using the product.

⚠ WARNING
RISK OF UNINTENDED OPERATION This device must be installed, configured, and used by qualified personnel only. Users must follow the recommendations, standards, and regulations in force. Check the function settings before starting the motor. Do not damage or modify the device. **Failure to follow these instructions can result in death, serious injury, or equipment damage.**

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Organization of the interface	33
Power up and operating modes	36
‘Config Menu’ Program	39
‘Main Menu’ program	46
Sub-program 1_Reference	48
Sub-program 2_Display	50
Sub-Program 3_Setup	52
Sub-Program 4_AdvSetup	58
Sub-Program 5_CommSetup	71
Sub-program 6_Module	74
Sub-program 7_Statistics	76
Sub-program 8_Password	79
Start-up Phase	82

Organization of the interface

'Config Menu' and 'Main Menu" programs

The interface comprises 2 programs: **Config Menu** and **Main Menu**.

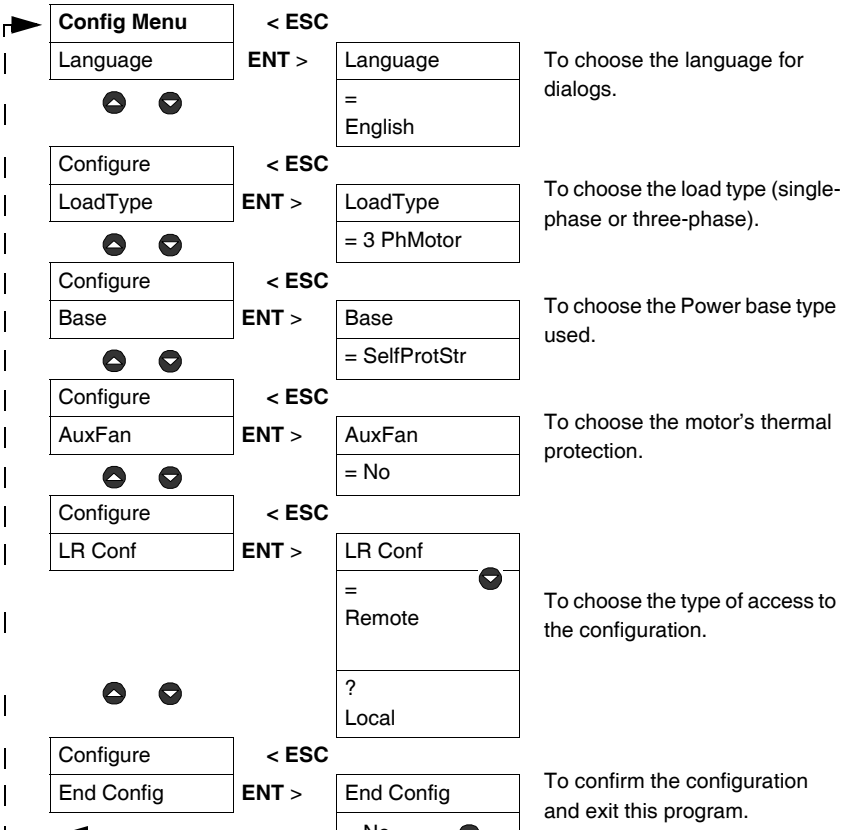
You access the **Config Menu** program:

- either during the commissioning,
- or from the Main Menu program, by performing a reset using the 84_RstToDfts function.

The **Config Menu** program of an LUCM is different from that of an LUCMT.

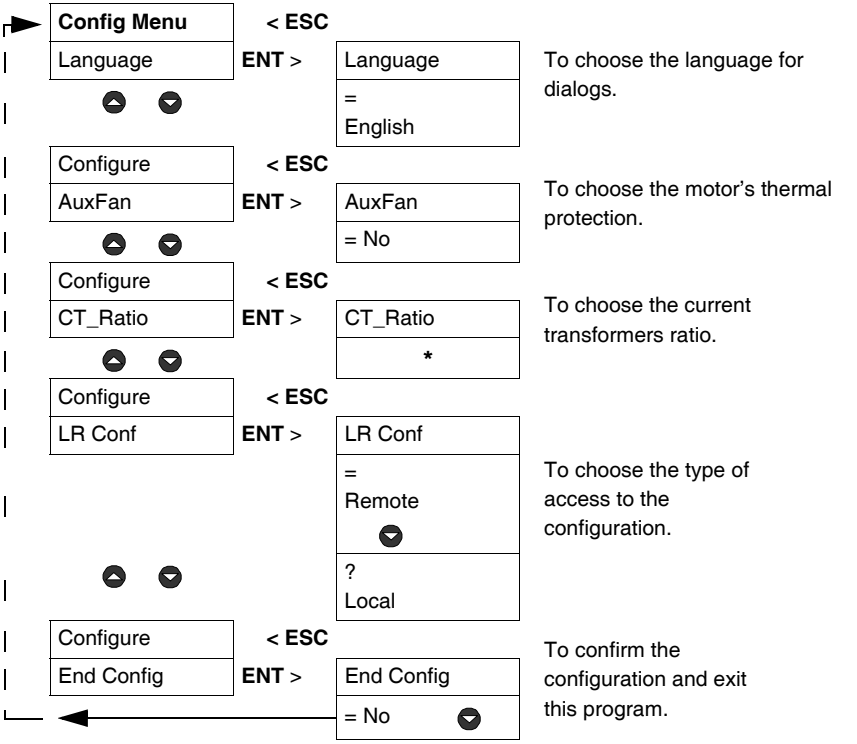
'Config Menu' program for LUCM

This program includes the configuration settings for an LUCM multifunction control unit:



‘Config Menu’ program for LUCMT

This program includes the configuration settings for an LUCMT multifunction control unit:

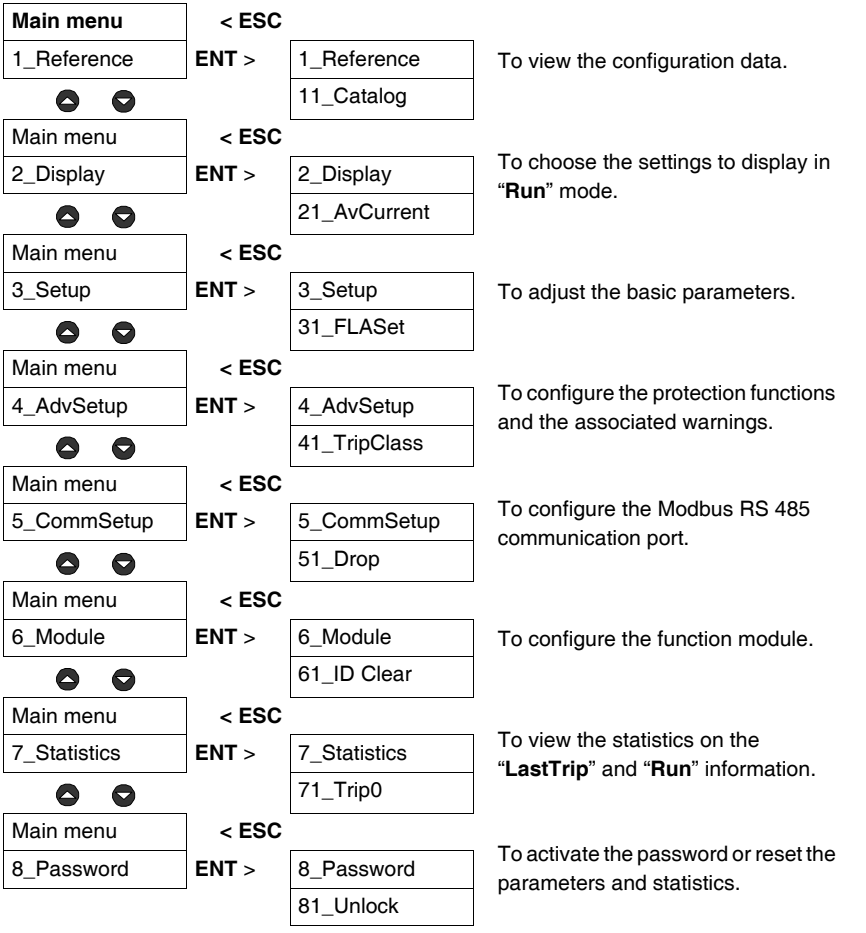


* No transformation ratio is saved in the factory settings. This parameter must be entered before you can exit the **Config Menu** program.

'Main Menu' program

This program includes the application settings and the parameters that can be modified.

The ESC key does not allow a return to the **Config Menu** program. To do so, you must confirm the **84_RstToDfts** function in order to cancel the existing configuration.



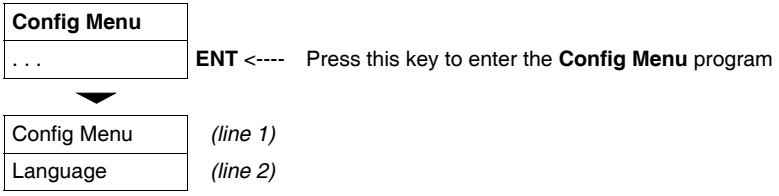
Power up and operating modes

The operating modes depend on the system status:

Start-up phase	Initial power up	"Configuration" mode (LUCM and LUCMT)
	Next power-ups	"Pause" mode (LUCM) "Off" mode (LUCM) "Ready" mode (LUCMT)
After the start-up phase		"Run" mode (LUCM and LUCMT)

Initial power up

The first time the multifunction control unit is powered up, after leaving the factory, it is in "Configuration" mode. The interface automatically displays the "**Config Menu**" program:



- The LUCM multifunction control unit must be configured before authorizing the power poles to be closed.

Note: If the configuration is done with the control circuit power supply only (A1/A2), the multifunction control unit switches to "**Pause**" mode as soon as the **End Config** function is confirmed. The power poles may be closed by deactivating the **33_Pause** function.

- The LUCMT multifunction control unit must be configured before authorizing the output relays (13 and 23) to be closed.

Subsequent power ups

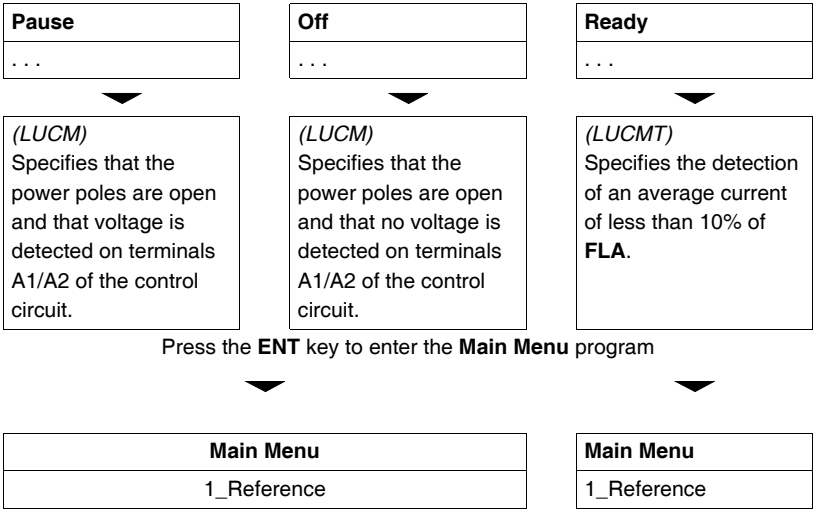
During subsequent power ups, the LUCM multifunction control unit is in the following mode:

- "**Pause**", or
- "**Off**".

During subsequent power ups, the LUCMT multifunction control unit is in the following mode:

- "**Ready**".

The **Main Menu** program is accessible from these three modes:


Pause
. . .
Off
. . .
Ready
. . .
(LUCM)
Specifies that the power poles are open and that voltage is detected on terminals A1/A2 of the control circuit.
(LUCM)
Specifies that the power poles are open and that no voltage is detected on terminals A1/A2 of the control circuit.
(LUCMT)
Specifies the detection of an average current of less than 10% of FLA.
Press the ENT key to enter the Main Menu program
Main Menu
1_Reference
Main Menu
1_Reference

All the settings of the **Main Menu** program may be changed in those modes, except for the following functions: **1_Reference** and **7_Statistics** (read only).

"Run" mode

The "**Run**" mode occurs after the start-up phase:

Line 1 displays "**Start**", indicating that the motor is in start-up phase (see *Start-up Phase, p. 82*). ● (LUCM) when the power poles are closed, ● (LUCMT) when the average current detected is greater than 10% of **FLA**. Line 2 displays the average current (IAV).	Start IAV = 2.5 A
Once the start-up phase has completed (maximum 10 sec.). "**Run**" is displayed on line 1, indicating the start of Run mode. Line 2 displays a loop of the information to be monitored. ● (by default) value of the average current - IAV (**21_AvCurrent**), ● or another parameter (to be selected, see *2_Display for LUCM, p. 50*),	Run IAV = 2.5 A
Press the **ENT** key to access the **Main Menu** program.	Main Menu 1_Reference

When the multifunction control unit is in "**Run**" mode, only the **2_Display** and **3_Setup** functions can be modified.

Once in the **Main Menu** program, if no key is pressed during a 30 second period, the system returns to the current mode ("**Run**", "**Pause**", "**Off**", "**Ready**").	Run IAV = 2.5 A

‘Config Menu’ Program

Introduction to the ‘Config Menu’ Program

This program lets you configure your multifunction control unit, according to the connected device.

- **Config Menu** appears on the first line of the display.
- The current function is displayed on the second line of the display.

Before accessing the **Main Menu** program, you must configure the multifunction control unit and confirm the configuration (**End Config** function). Then the configuration settings may be viewed at any time in the **1_Reference** function of the **Main Menu** program.

Note: To edit the parameters after you have confirmed the configuration (**End Config** function), you must return the multifunction control unit to the default configuration (see *84_RstToDfts, p. 81*).

Configure an LUCM

Functions to be configured for an LUCM:

Main Menu *(line 1)*		Meaning *(line 2)*	Comments
Config Menu		Language	To choose the language for dialogs. Option to edit this choice in the **34_Language** function.
		LoadType	To define whether a three-phase or single-phase motor is used. *Choosing ‘1 phase’ for a motor with a three-phase power supply will cause an internal fault #60, meaning that a value was detected on IL2.*
		Base	To specify the type of Power base (marked on one of its sides) where the multifunction control unit is installed.
		AuxFan	To define the thermal protection for motors cooled by an auxiliary fan. If it is activated, this parameter reduces the time before reset by 75%. (see *Thermal trigger and reset graphs, p. 94*).
		LR Conf	To select the type of access to the configuration of the multifunction control unit.
		End Config	To save the configuration and access the **Main Menu**.

LUCM functions: Language, LoadType, Base, AuxFan, LR Conf

Dialog **language** for an LUCM:

Language		= English	Dialogs in English (default)
		? Français	Dialogs in French
		? Español	Dialogs in Spanish
		? Deutsch	Dialogs in German
		? Italiano	Dialogs in Italian

Type of **load** for a LUCM:

LoadType		= 3 PhMotor	Protection of a three-phase motor (default)
		? 1 PhMotor	Protection of a single-phase motor

This parameter impacts the calculation of the average current value:
- If three-phase motor ==> AvCurrent = (I1 + I2 + I3) / 3
- If single-phase motor ==> AvCurrent = (I1 + I3) / 2

Type of **Base** for an LUCM:

Define the base as a Power base (Starter-controller or Starter):			
Base		= SelfProtStr	Starter-controller including protection against short-circuits and thermal overloads (default).
		? Starter	Starter including protection against thermal overloads only. In this case, the installer should associate the Starter Power base with a device for protecting against short-circuits.

⚠ CAUTION

INCORRECT CONFIGURATION OF THE "BASE" FUNCTION.

This function is used for identification only. It does not impact the protection functions, adjustments, or the protection type provided by the Power base.
An incorrect configuration may cause an incorrect display or an incorrect read by the bus.

Failure to follow these instructions can result in injury or equipment damage.

Aux. fan motor for a LUCM: thermal protection characteristics required for protecting a motor.

AuxFan		= No	- self-cooled motor (default) (not cooled by an auxiliary fan)
		? Yes	- motor with auxiliary fan (cooled by an auxiliary fan)

⚠ CAUTION
INCORRECT CONFIGURATION OF THE "AUXFAN" FUNCTION. If it is activated, this parameter reduces the time before reset by 75%. If the motor is not cooled by an auxiliary fan, the value of the thermal capacity will be incorrect. **Failure to follow these instructions can result in injury or equipment damage.**

Choice of the type of **access** to the configuration of an LUCM:

LR Conf		= Remote	- the configuration can be downloaded via the associated communication module (except Modbus)
		? Local	- the configuration can only be entered via the keypad on the product

End Config of the configuration mode for an LUCM:

End Config		= No	**ENT** or **ESC** => stay on **End Config**
		? Yes	**ENT** => save the configuration and return to **Off** **ESC** => stay on **End Config**

Configure an LUCMT

Functions to be configured for an LUCMT:

Program *(line 1)*		Meaning *(line 2)*	Comments
Config Menu		Language	To choose the language for dialogs. Option to edit this choice in the **34_Language** function.
		AuxFan	To define the thermal protection for motors cooled by an auxiliary fan. If this parameter is activated, it reduces the time before reset by 75%. (see *Thermal trigger and reset graphs, p. 94*).
		CT_Ratio	To set the transformation ratio in Amperes for adjusting protections and the display. The CT_Ratio depends on the current (intensity) transformers used. CT_Ratio must be configured before you can exit the **Config Menu** program.
		LR Conf	To select the type of access to the configuration of the multifunction control unit.
		End Config	To save the configuration and access the **Main Menu** program.

LUCMT functions: Language, AuxFan, CT_Ratio, LR Conf

Dialog **language** for an LUCMT:

Language		= English	Dialogs in English (default)
		? Français	Dialogs in French

Aux. fan motor for an LUCMT: the thermal protection characteristics are those required for protecting a motor.

AuxFan		= No	- self-cooled motor (default) (not cooled by an auxiliary fan)
		? Yes	- motor with auxiliary fan (cooled by an auxiliary fan)

⚠ CAUTION

INCORRECT CONFIGURATION OF THE "AUXFAN" FUNCTION.

If it is activated, this parameter reduces the time before reset by 75%.
If the motor is not cooled by an auxiliary fan, the value of the thermal capacity will be incorrect.

Failure to follow these instructions can result in injury or equipment damage.

Transformation ratio of the **CT_Ratio** current for an LUCMT:

CT_Ratio		**No factory-set value ==> the parameter must be defined** in this function (primary voltage/secondary voltage) (see *31_FLASet for LUCM, p. 53*)	
		30:3	30:3 current transformers
		30:2	30:2 current transformers
		30:1	30:1 current transformers
		50:1	50:1 current transformers
		100:1	100:1 current transformers
		200:1	200:1 current transformers
		400:1	400:1 current transformers
		800:1	800:1 current transformers
		Others	To enter transformer characteristics different from those above: - primary (Primary), - secondary (Secondary) - number of passes (Exter_Pass)

30:3		= No	(default) Return to parameter selection
		? Yes	For a **CT_Ratio** of 30:3, the range of threshold current settings will be from 3.5 - 10.5 A

30:2		= No	(default) Return to parameter selection
		? Yes	For a **CT_Ratio** of 30:2, the range of threshold current settings will be from 5.2 - 15.7 A

30:1		= No	(default) Return to parameter selection
		? Yes	For a **CT_Ratio** of 30:1, the range of threshold current settings will be from 10.5 - 31.5 A

50:1		= No	(default) Return to parameter selection
		? Yes	For a **CT_Ratio** of 50:1, the range of threshold current settings will be from 17.5 - 52.5 A

100:1		= No	(default) Return to parameter selection
		? Yes	For a **CT_Ratio** of 100:1, the range of threshold current settings will be from 35 - 105 A

200:1		= No	(default) Return to parameter selection
		? Yes	For a **CT_Ratio** of 200:1, the range of threshold current settings will be from 35 - 105 A

400:1		= No	(default) Return to parameter selection
		? Yes	For a **CT_Ratio** of 400:1, the range of threshold current settings will be from 140 - 420 A

800:1		= No	(default) Return to parameter selection
		? Yes	For a **CT_Ratio** of 800:1, the range of threshold current settings will be from 280 - 840 A

For information about setting ranges for an LUCMT, refer to 31_FLASet for LUCM, p. 53.

CT_Ratio Others (other current transformation ratios). Adjust all three of the following sub-programs:

Others *(line 1)*	**Adjustment** *(line 2)*	**Comments**
Primary (Primary circuit characteristic)	= 00000	To configure the value of the primary current. Settings range from 1 to 65535. By default, the value indicated on the left is 0. Press **ENT** to start the adjustment. Adjust the five figures individually using the up and down arrows, starting from the furthest to the left. Confirm each figure by pressing **ENT** before going on to the next. When you have confirmed everything, the number is displayed on the left after the "=" sign. To exit, press **ESC**.
	= 00000 5_ _ _ _ **ENT**	Example of setting the **Primary** parameter to 53214:
	= 50000 _ 3_ _ _ **ENT**	
	= 53000 _ _ 2_ _ **ENT**	
	= 53200 _ _ _ 1_ **ENT**	
	= 53210 _ _ _ _ 4 **ENT**	
	= 53214	
Secondary (Secondary circuit characteristic)	= 1	To configure the value of the secondary current. Settings range from 1 (default) to 500, in increments of 1. Press **ENT** to start the adjustment. Press ▲ or ▼ to increase or decrease the value displayed. Press **ENT** to confirm the value.
Exter_Pass	= 1	To specify the number of passes made in the primary of the current transformer. Settings range from 1 (default) to 100, in increments of 1. Press **ENT** to start the adjustment. Press ▲ or ▼ to increase or decrease the value displayed. Press **ENT** to confirm the value.

Example: Manual entry or modification of a transformation ratio of 160:1

Primary (Primary circuit characteristic) = 800

Secondary (Secondary circuit characteristic) = 1

Exter_Pass = 5

800 / (1 * 5) = 160.

⚠ CAUTION

INCORRECT CONFIGURATION OF THE "CT_RATIO" FUNCTION.

The CT_Ratio must be specified to make the product compatible with the current transformers used.
The CT_Ratio specifies the default values of the FLA and the various protections of the motor being monitored.

Failure to follow these instructions can result in injury or equipment damage.

Choice of the type of **access** to the configuration of an LUCMT:

LR Conf		= Remote	- the configuration can be downloaded via the associated communication module (except Modbus)
		? Local	- the configuration can only be entered via the keypad on the product

End Config of the configuration mode for a LUCMT:

End Config		= No	**ENT** or **ESC** => stay on **End Config**
		? Yes	**ENT** => save the configuration and return to **Ready** **ESC** => stay on **End Config**

‘Main Menu’ program

Introduction to the ‘Main Menu’ program

After having configured the multifunction control unit, the display shows:

- **Off** (for an LUCM)

- **Ready** (for an LUCMT).

Press **ENT** to access the **Main Menu** program:

line 1	**Main Menu**
line 2	**1_Reference**

The **Main Menu** program contains all the sub-programs required by users to:

- configure the values and statuses to be displayed,
- configure the protection functions,
- configure the module’s input/output and communications,
- access the data stored in the statistics.

If no action is taken for 30 seconds, the display returns to:

- **Off** (for an LUCM)

- **Ready** (for an LUCMT).

Functions of the 'Main Menu' program

The **Main Menu** program displays the following sub-programs:

Program *(line 1)*		Sub-prog. *(line 2)*	Comments
Main Menu		1_Reference	To display the reference of the multifunction control unit and the choices made in the **Config Menu**.
		2_Display	To define the values and statuses to display on the control unit display in "**Run**" mode.
		3_Setup	To access all the base settings, which can be changed in "**Run**" mode.
		4_AdvSetup	To access the settings of protection functions and the associated warnings.
		5_CommSetup	To access the settings of the RS 485 communication port.
		6_Module	To access the communications settings with the function module, which can be modified in "**Run**" mode.
		7_Statistics	To access the statistics of information saved in the multifunction control unit memory. It includes the history of triggers, and the trigger and stop counters.
		8_Password	To set up a password preventing untimely changes to modifiable functions. To also access the function to reset the multifunction control unit.

Each sub-program, from 1_Reference to 8_Password, is described in detail in the following chapters.

Sub-program 1_Reference

At a Glance

The **1_Reference** sub-program allows only to read the references and choices made in the **Config Menu** program.

This information can be **viewed** in all modes. The LUCM reference is different from the LUCMT reference.

1_Reference for LUCM

Main Menu is displayed on the first line of the display.

1_Reference is displayed on the second line of the display.

Press **ENT** to display the reference of the configuration (**read only**).

Sub-prog. ***(lines 1 and 2)***		**Function Reference** ***(lines 1 and 2)***	**Comments**
1_Reference		11_Catalog LUCMX6BL	Manufacturing no. (line 2).
		12_Firmware Rev: xx.xx	Firmware revision number (line 2).
		13_FLA Range 0.15 - 0.6 A	Range of threshold current settings (min. - max.) (line 2).
		14_LoadType = 3 PhMotor	Type of load (line 2). (result of the choice made in **Config Menu**)
		15_AuxFan = No	Type of cooling for the motor (line 2). (result of the choice made in **Config Menu**)
		16_Base = SelfProtStr	Type of Base (line 2). (result of the choice made in **Config Menu**)

1_Reference for LUCMT

Main Menu is displayed on the first line of the display.

1_Reference is displayed on the second line of the display.

Press **ENT** to display the reference of the configuration (**read only**).

Submenu ***(lines 1 and 2)***		**Function Reference** ***(lines 1 and 2)***	**Comments**
1_Reference		11_Catalog LUCMT1BL	Manufacturing no. (line 2). *This value is fixed.*
		12_Firmware Rev: xx.xx	Firmware revision number (line 2). *This value is fixed.*
		13_FLA Range 35 - 105 A	Range of threshold current settings (min. - max.) (line 2). *This value depends on the CT_Ratio configured.*
		14_LoadType = 3 PhMotor	Type of load (line 2). *This value is fixed.*
		15_AuxFan = No	Type of cooling for the motor (line 2). (result of the choice made in **Config Menu**)
		16_Base = Controller	Type of Base (line 2). *This value is fixed.*

Sub-program 2_Display

At a Glance

The **2_Display** sub-program allows to define the values and statuses that will appear in a loop on the control unit screen in " **Run**" mode.

Each function may be **activated**/**deactivated** in any mode. The display on LUCM is different than the one on LUCMT.

2_Display for LUCM

Current function is displayed on the second line of the display:

Sub-prog. *(line 1)*		Function *(line 2)*	Comments
2_Display		21_AvCurrent	The average motor current. Monophase current or the average of currents in the 3 phases (A) = Yes (default)
		22_ThermCap	The thermal capacity of the motor (%) = No (default)
		23_L1Current	The L1 current measured in the L1/T1 phase (A) = No (default)
		24_L2Current	The L2 current measured in the L2/T2 phase (A) = No (default)
		25_L3Current	The L3 current measured in the L3/T3 phase (A) = No (default)
		26_GFCurrent	The average ground fault current (A) = No (default)
		27_LastTrip	Last trip type (A) = No (default)
		28_PhaseImb	The percentage of imbalance between the phases, for three-phase loads (%) = No (default)

2_Display for LUCMT

Current function is displayed on the second line of the display:

Sub-prog. *(line 1)*		Function *(line 2)*	Comments
2_Display		21_AvCurrent	The average motor current. Monophase current or the average of currents in the 3 phases (A) = Yes (default)
		22_ThermCap	The thermal capacity of the motor (%) = No (default)
		23_L1Current	The L1 current measured in the L1/T1 phase (A) = No (default)
		24_L2Current	The L2 current measured in the L2/T2 phase (A) = No (default)
		25_L3Current	The L3 current measured in the L3/T3 phase (A) = No (default)
		26_GFCurrent	The average ground fault current (A) = No (default)
		27_LastTrip	Last trip type (A) = No (default)
		28_PhaseImb	The percentage of imbalance between the phases, for three-phase loads (%) = No (default)
		29_ONhours	The number of operating hours (h) = No (default)

Sub-Program 3_Setup

Presentation

The sub-program **3_Setup** provides access to all basic settings.

Each function may be **modified** in any mode. The LUCM settings are different from the LUCMT settings.

⚠ WARNING

INCORRECT SETTINGS

The settings (parameters) may be changed in "**Run**" mode.
Values may be defined via the network.
External programming peripherals must have write privileges.
The power must be applied to adjusted values.
Use a password to prevent illicit changes.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

3_Setup for LUCM

The current function is displayed on the second line of the display.

Sub-prog. (*line 1*)		**Meaning (*line 2)***
3_Setup		31_FLASet 32_TestTrip 33_Pause 34_Language

31_FLASet for LUCM

The FLA value represents the nominal current absorbed by the motor. This value is used in most protection functions.

Adjustments are made to the nominal current at full load. You should use the value provided on the motor plate.

The range of settings depends on the reference of the multifunction control unit (six possible references). The minimum value is displayed by default. Values are increased/decreased in steps of 1.

	LUCMX6BL	LUCM1XBL	LUCM05BL	LUCM12BL	LUCM18BL	LUCM32BL
	= 0.15 A (min.) to ? 0.6 A (max.)	= 0.35 A (min.) to ? 1.4 A (max.)	= 1.25 A (min.) to ? 5 A (max.)	= 3 A (min.) to ? 12 A (max.)	= 4.5 A (min.) to ? 18 A (max.)	= 8 A (min.) to ? 32 A (max.)

⚠ WARNING

INCORRECT FLA SETTING

The FLA setting must represent the nominal current when the motor is at full load. The FLA setting defines the default values of the other motor protection functions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

32_TestTrip for LUCM

To test the trigger function on a thermal overload:

32_TestTrip		= No (default)	No action. To adjust the thermal memory (see *43_RstAdjust, p. 61*).
		? Yes	Launches a trigger simulation, as long as the starter is in the "**Run**" position and displays **Tripped** / **TestTrip**. In "**Manual reset**" mode, the acknowledgement must be performed manually (rotary button). In "**Remote reset**" mode, the starter is powered off without triggering the mechanics. In "**Automatic reset**" mode, the starter is powered off without triggering the mechanics. After the timeout for the thermal memory has expired, the multifunction control unit automatically acknowledges the trip and the motor-starter restarts (this option requires the use of a 2-wire 24 V DC control). After a trigger test, the multifunction control unit authorizes the restart only after the thermal memory timeout has expired (120 sec. by default).
To exit the **TestTrip** function, reset using the rotary button ("Warn-OL" is displayed for a few seconds). Press **ENT** to return to the **Main Menu** / **Reference_1.**			

33_Pause for LUCM

To put the motor on pause:

33_Pause		= No (default)	Puts the motor on pause in "**Run**" mode. The multifunction control unit powers off the starter coil, thereby opening the power poles while maintaining terminals A1/A2 powered on. Powering off the control circuit via terminals A1/A2, when the product is in "**Pause**" mode does not change the status of the command. The product returns to "**Pause**" mode as soon as power reappears. Keeps the power poles closed while terminals A1/A2 are powered on
		? Yes	Puts the motor on pause, causing the power poles to open.
To exit **Pause** mode, press **ENT** to return to the **Main Menu** / **Reference_1.** Return to **3_Setup**, then **33_Pause**, and set the value to **= No**.			

⚠ WARNING

UNEXPECTED MOTOR START-UP

The **Pause** function must never be used instead of a stop command.
The device must be operated in compliance with national and local safety codes.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

34_Language for LUCM

To change the language for dialogs:

34_Language		= English	Change the dialog language for the multifunction control unit. First choice made in **Config Menu**. Dialogs in English (default)
		? Français	Dialogs in French
		? Español	Dialogs in Spanish
		? Deutsch	Dialogs in German
		? Italiano	Dialogs in Italian

3_Setup for LUCMT

The current function is displayed on the second line of the display.

Sub-prog. (*line 1*)		**Meaning (*line 2)***
3_Setup	▲ ▼	31_FLASet 32_TestTrip 34_Language

31_FLASet for LUCMT

The FLA value represents the nominal current absorbed by the motor. This value is used in most protection functions.

Adjustments are made to the nominal current at full load. You should use the value provided on the motor plate.

The range of settings is determined by the value of **CT_Ratio** defined in the **Config Menu**. The minimum value is displayed by default. Values are increased/decreased in steps of 1.

	CT_Ratio					
	30:3	30:2	30:1	50:1	100:1	200:1
	= 3.5 A (min.) to ? 10.5 A (max.)	= 5.2 A (min.) to ? 15.7 A (max.)	= 10.5 A (min.) to 31.5 (max.)	= 17.5 A (min.) to ? 52.5 A (max.)	= 35 A (min.) to ? 105 A (max.)	= 70 A (min.) to ? 210 A (max.)
▲ ▼	400:1	800:1	Others			
	= 140 A (min.) to ? 420 A (max.)	= 280 A (min.) to ? 840 A (max.)	The displayed range depends on the CT_Ratio defined (3 param.)			

32_TestTrip for LUCMT

To test the trigger function on a thermal overload:

32_TestTrip		= No (default)	No action. To adjust the thermal memory (see *43_RstAdjust, p. 61*).
		? Yes	Launches a trigger simulation, as long as the starter is in the "Ready" or "**Run**" position and displays **Tripped** / **TestTrip**. In "**Manual reset**" mode, the acknowledgement must be performed manually. In "**Remote reset**" mode, the starter is powered off without triggering the mechanics. In "**Automatic reset**" mode, the starter is powered off without triggering the mechanics. After the timeout for the thermal memory has expired, the multifunction control unit automatically acknowledges the trip and the motor-starter restarts (this option requires the use of a 2-wire 24 V DC control). After a trigger test, the multifunction control unit authorizes the restart only after the thermal memory timeout has expired (120 sec. by default).
To exit the **TestTrip** function, reset by pressing the Reset button ("Warn-OL" is displayed for a few seconds). Press **ENT** to return to the **Main Menu** / **Reference_1.**			

34_Language for LUCMT

To change the language for dialogs:

34_Language		= English	Change the dialog language for the multifunction control unit. First choice made in **Config Menu**. Dialogs in English (default).
		? Français	Dialogs in French

Sub-Program 4_AdvSetup

Presentation

The **4_AdvSetup** sub-program is used to configure the protection functions and the associated warnings.

Each function may be displayed in any mode.

Each function may be modified in the following modes:

- "**Off**" or "**Pause**" (LUCM)
- "**Ready**" (LUCMT)

4_AdvSetup

The current function is displayed on the second line of the display:

Sub-prog. ***(line 1)***		**Meaning** ***(line 2)***
4_AdvSetup		41_TripClass 42_ResetMode 43_RstAdjust 44_MagTrip *(not used for LUCMTs)* 45_OLWarning 46_GroundFlt 47_PhaseImb 48_Jam 49_UndrLd 410_LongStrt

41_TripClass To choose the trip class:

41_TripClass		= 5 (default)	This value shows timeout (in seconds) prior to trigger for a thermal overload of 600% FLA. Settings can range from 5 to 30, in increments of 5 (see *Thermal trigger and reset graphs, p. 94*). (see*31_FLASet for LUCM, p. 53*).
		? 10	
		? 15	
		? 20	
		? 25	
		? 30	

⚠ CAUTION

TRIP CLASS SETTING INCORRECT

TripClass settings must fit the thermal capacity for the motor.

Failure to follow these instructions can result in injury or equipment damage.

42_ResetMode To define the reset method after a fault has been detected:

Manual
Remote/Ent
Automatic

(see *Warning Management, p. 86*).

42_ResetMode		= Manual (default)	Used to acknowledge locally after a fault trip.
		? Remote/Ent	Used to acknowledge remotely after a fault trip due to a 45_Thermal Overload, a 32_TestTrip, a 410_LongStrt, a 47_PhaseImb, a 49_UnderLoad, a 48_Jam of the motor, a stop signal sent by a function module or a communication fault. *==> Switch the device off, then on again, to acknowledge a thermal overload fault. This has no effect on the thermal memory. A new trigger may occur at restart if the control unit's internal thermal capacity level is exceeded.*
		? Auto	Used to automatically reset after a "thermal overload" fault.

⚠ DANGER

UNEXPECTED MOTOR START-UP

If an "on" command is still active and the system is in "**Auto**" reset mode, the motor restarts after timeout.
The device must be operated in compliance with national and local safety codes.

Failure to follow these instructions will result in death or serious injury.

43_RstAdjust

The reset adjustment level is used to adjust the reset time (**ResetTime**) and the thermal capacity (**ResetLevel**) which both have to be reached before a thermal overload trip reset can be authorized

(see *Thermal trigger and reset graphs, p. 94*).

43_RstAdjust		ResetTime	Adjusts timeout (in seconds) before reset after a thermal overload trip. Use **Manual reset** or switch the command circuit off then on again using the A1/A2 terminals to reset after a thermal overload trip. This has no effect on the internal thermal memory. A new trigger may occur at restart if the multifunction control unit's internal thermal capacity level is exceeded. To adjust the thermal memory (see *43_RstAdjust, p. 61*). Default value = 120. Settings range from 1 to 1000 seconds in increments of 1 second.
		ResetLevel	Lowest thermal capacity level required to authorize restart. Default value = 80% Settings range from 35 to 95% of thermal capacity, in increments of 5%. *==> 100% of thermal capacity is reached if current value is 112% of FLA (see 31_FLASet for LUCM, p. 53).*

⚠ CAUTION

INCORRECT RESET TIMEOUT SETTING

Thermal reset timeout must be sufficient to allow motor to cool after a thermal trip. See the motor manufacturer's instructions before adjusting this setting.

Failure to follow these instructions can result in injury or equipment damage.

44_MagTrip for LUCM

To adjust the over-current protection level for a starter-controller, on an LUCM control unit:

44_MagTrip		= 1420% FLA (default)	Settings can range from 300 to 1700% FLA, in increments of 20% Any surge lasting over 100 ms causes the power Base mechanism to trigger. *==> This function is not available if the power Base is a Starter type (Starter, LUS../LU2S..) (see Configure an LUCM, p. 39*). ==> 800 % FLA ==> Starters-controllers.

Note: Any over-current trip causes the power Base mechanism to trigger and requires a **manual reset** (by turning the reset button), whatever reset mode has been chosen (see *42_ResetMode, p. 60*).

⚠ DANGER

INCORRECT OVER-CURRENT LEVEL SETTING

Device selection and configuration must comply with national and local safety codes.

Failure to follow these instructions will result in death or serious injury.

45_Overload

To activate the warning function for thermal overload protection:

45_OLWarning		Warning	Used to enable or disable the warning function. Default value is (**= On**). The warning is triggered as soon as thermal capacity exceeds the preset level during the preset time span. It does not cause a product fault. *==> The warning is disabled when thermal capacity falls to 95% of trip level.*
		Warn Level	If **Warning** = On, used to set the level beyond which the multifunction control unit activates the warning under thermal overload conditions. Default level**= 85%**. Settings range from 10 to 100% of thermal capacity, in increments of 1%. ==> 100% of thermal capacity is reached if permanent current value is 112% of FLA (see *31_FLASet for LUCM, p. 53*).

46_GroundFlt To enable or disable and adjust the ground fault protection system, by acting on the following parameters:

Trip
TripTime
TripLevel
Warning
Warn Level

⚠ DANGER

INCORRECT SETTING FOR THE GROUND FAULT PROTECTION LEVEL

The ground fault protection level must be such that it protects motor cabling and equipment.
The settings must comply with national and local safety codes.

Failure to follow these instructions will result in death or serious injury.

A ground fault exists if the multifunction control unit detects that the currents in the three phases do not add up to zero during the preset timeout:

Trip		= On (default) ? Off	Used to enable (default) or disable the ground fault protection system. ==> When the parameter is enabled, any ground fault always triggers the power Base mechanism and requires a **manual reset**, whatever reset mode has been chosen (see *42_ResetMode, p. 60*).

TripTime		= 1.0 s (default)	Time during which the control unit has detected a ground current value higher than the preset level, before triggering. Trigger timeout (**= 1.0 s** default). Settings range from 0.1 to 1.2 seconds, in increments of 0.1 second.

TripLevel		= x (30% FLA min default value)	Adjustment of the ground current level defining the trip condition. Minimum default setting = 30% FLA. Settings range from 20 to 500% of the setting range for the multifunction control unit being used, in increments of 10%. For example, for a LUCM1XBL (min FLA = 0.15 A), settings range from 0.03 to 0.75 A in increments of 0.01 A, with a default value of 0.04 A.

Warning		= On (default) ? Off	Enable (default value) or disable the ground fault protection warning. Warning is disabled when ground fault current falls to 95% of the trip level. A warning does not cause the system to trigger (product fault).

Warn Level		= x (30% FLA min default value)	If **Warning** = 'On', used to adjust the ground current level defining the warning condition. Settings range from 20 to 500% of min FLA for the setting range for multifunction control unit being used, in increments of 10%. For example, for a LUCM1XBL (min FLA = 0.15 A), settings range from 0.03 to 0.75 A in increments of 0.01 A, with a default value of 0.04 A.

47_PhaseImb

To adjust the phase imbalance or phase loss protection settings when using a three-phase load:

Trip
TripTimeStrt
TripTimeRun
TripLevel
Warning
Warn Level

An imbalance fault condition is registered if the imbalance (expressed as a %) between the current on one phase and the average current on the three phases exceeds the preset value, over a time at least equal to the time displayed.

The time setting must apply to start conditions as well as normal running conditions.

==> This function is not available for single-phase loads.

⚠ WARNING

INCORRECT PHASE IMBALANCE LEVEL SETTING

The phase imbalance levels must be such that they protect motor cabling and equipment.
This function is disabled with single-phase motor loads.
The settings must comply with national and local safety codes.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Trip		= On (default)	Used to enable or disable the phase imbalance or phase loss protection system. ==> The reset mode depends on the option selected (see *42_ResetMode, p. 60*).
		? Off	

TripTimeStrt		= 0.7 s (default)	Trigger timeout (Start). Used to adjust the "phase imbalance" timeout setting during start-up, prior to trigger. The range of settings, during the start-up phase, is from 0.2 to 20 seconds, in increments of 0.1 s. This time is applied if the imbalance condition appears during the start-up phase (see *Start-up Phase, p. 82*)

TripTimeRun		= 5 s (default)	Trigger timeout (Run). Used to adjust the "phase imbalance" timeout setting after start-up, prior to trigger. The range of settings, after the start-up phase, is from 0.2 to 20 seconds, in increments of 0.1 s. This time is applied if the imbalance condition appears after the start-up phase (see *Start-up Phase, p. 82*).

TripLevel		= 10 (default)	Trigger timeout (as a % of IMB) Used to adjust the imbalance level that determines a trip condition. Settings range from 10 to 30% of phase imbalance, in increments of 1%.

Warning		= On (default)	Used to enable or disable the phase imbalance or phase loss protection warning. Warning is disabled when imbalance falls below 95% of the trip level.
		? Off	

Warn Level		= 10 (default)	Used to adjust the phase imbalance level defining the warning condition (as a % of IMB). Settings range from 10 to 30% of phase imbalance, in increments of 1%.

48_Jam

A "jam" fault condition is registered if the current value exceeds the preset level during the preset time, after the end of the start-up phase (see *Start-up Phase, p. 82*).

Used to adjust the mechanical jam protection settings:

Trip
TripTime
TripLevel
Warning
Warn Level

Trip		= Off (default) ? On	Used to enable or disable the mechanical jam protection system. ==> The reset mode depends on the option selected (see *42_ResetMode, p. 60*).
TripTime		= 5 s (default)	If **Trip** = On, can be used to adjust the setting for the current that initializes the trigger timeout. Adjust the time during which the multifunction control unit must detect a current value higher than the preset level, before triggering. The count-down only starts after the end of the start-up phase (see *Start-up Phase, p. 82*). Settings range from 1 to 30 seconds, in increments of 1 second.
TripLevel		= 200 (default)	If **Trip** = On, used to adjust the trip level setting (as a % of FLA). Settings can range from 100 to 800% FLA, in increments of 10%
Warning		= Off (default) ? On	Used to enable or disable the mechanical jam protection warning. Warning is disabled when current value falls below 95% of the trip level.
Warn Level		= 200 (default)	If **Warning** = On, can be used to adjust the setting for the current that initializes the timeout before warning activation (as a % of FLA). Settings can range from 100 to 800% FLA, in increments of 10%

49_UnderLd Underload and idling protection:

Trip
TripTime
TripLevel
Warning
Warn Level

Trip		= Off (default) ? On	Used to adjust the underload and idling protection settings. An "underload" fault condition is registered if the current value falls below the preset level during the preset time, after the end of the start-up phase (see *Start-up Phase, p. 82*). Used to enable or disable the underload and idling protection settings. ==> The reset mode depends on the option selected (see *42_ResetMode, p. 60*).
TripTime		= 10 s (default)	If **Trip** = On, can be used to adjust the trigger timeout setting. Used to adjust the time during which the multifunction control unit must detect a current value lower than the preset level, before triggering. The count-down only starts after the end of the start-up phase (see *Start-up Phase, p. 82*). Settings range from 1 to 200 seconds, in increments of 1 second.
TripLevel		= 50% FLA (default)	If **Trip** = On, can be used to adjust the trip level setting. Used to adjust the setting for the current that initializes the trigger timeout. Settings can range from 30 to 100% FLA, in increments of 1%
Warning		= Off (default) ? On	If **Warning** = On, can be used to enable or disable the warning. Warning is disabled when current value rises above 105% of the trip level. Enable or disable the underload and idling protection warning settings.
Warn Level		= 50% FLA (default)	If **Warning** = On, can be used to adjust the setting for the current that initializes the count-down, before triggering the warning. Settings can range from 30 to 100% FLA, in increments of 1%.

410_LongStrt Used to adjust the long start protection settings:

Trip
TripTime
TripLevel
Warning
Warn Level

During the start-up phase, a long start "LongSrt" fault condition is registered if the current value exceeds the preset level during the preset time (see *Start-up Phase, p. 82*).

==>The Long Start function has no effect on the thermal overload protection function. If the thermal capacity level is reached during the start-up phase, the starter will trigger a "thermal overload" fault.

Trip		= Off (default) ? On	Used to enable or disable the long start protection system. ==> The reset mode depends on the option selected (see *42_ResetMode, p. 60*).
TripTime		= 10 s (default)	If **Trip** = On, can be used to adjust maximum duration for the start-up phase (in seconds) before triggering (see *Start-up Phase, p. 82*). Settings range from 1 to 200 seconds, in increments of 1 second.
TripLevel		= 100 (default)	If **Trip** = On, can be used to adjust the setting for the trigger current, once the start-up phase has been completed (as a % FLA). Settings can range from 100 to 800% FLA, in increments of 10%
Warning		= Off (default) ? On	Enable or disable the long start protection warning. The warning ceases once the current falls 5% below the preset level or at the end of the start-up phase.
Warn Level		= 100 (default)	If **Warning** = On, can be used to adjust the setting for the current that initializes the timeout before warning activation (as a % of FLA). Settings can range from 100 to 800% FLA, in increments of 10%

Sub-Program 5_CommSetup

Presentation

The **5_CommSetup** sub-program is used to configure the Modbus RS 485 communication port, located on the multifunction control unit front panel.

Each function may be **configured** in the following modes:
- "**Off**" or "**Pause**" (LUCM)
- "**Ready**" (LUCMT)

The asynchronous RS 485 link supports the Modbus slave protocol.

The remote viewing or configuration devices, used to initialize communication by reading or writing data in the multifunction control unit 16-bit registers, must be Modbus masters.

Note: For detailed information on the Modbus protocol, access <www.Modbus.org>.

⚠ WARNING

MISUSE OF COMMUNICATION PORT

Communication ports should only be used for non-critical data transfer.
Contactor and current level monitoring data can be delayed by transmission time lag and must not be used for critical command decisions.
The Off or Pause functions must not be used for emergency stops or for critical command applications.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

5_CommSetup

The current function is displayed on the second line of the display:

Sub-prog. ***(line 1)***		**Meaning** ***(line 2)***
5_CommSetup		51_Drop 52_Baud 53_Parity 54_Control 55_CommLoss

51_Drop

Used to define the RS 485 communication port address. Select a Modbus slave number:

51_Drop		= 1 (default)	Available numbers: 1 to 247, in increments of 1.

Note: Address 127 is reserved for a point-to-point connection. It must not be used for a network with more than one multifunction control unit.
Address 127 is reserved for a point-to-point connection with configuration software such as PowerSuite. Communication is possible in this way without knowing the address of the multifunction control unit.
All multifunction control units respond to address 127.

52_Baud

Used to define the Modbus transmission speed for the RS 485 communication port:

52_Baud		= 19200 (default)	Defines the frame transmission speed between the communication port and the connected device.	bps
		? 9600		
		? 4800		
		? 1200		

53_Parity

Used to define the asynchronous link parity for the RS 485 communication port:

53_Parity		= None (default)	1 start bit, 8 data bits and 1 stop bit (total 10 bits).
		? Even	1 start bit, 8 data bits, 1 parity bit and 1 stop bit (total 11 bits).

54_Control

Used to enable or to disable internal register records via the communication port.

If the function is disabled, write commands are only valid for the following registers:

- Remote keyboard (register 1100)
- Multifunction control unit status (register 704)
- Multifunction control unit extended status (register 705)
- Communication module or option configuration (registers 680-690)

54_Control		= On (default)	Used to enable or to disable internal register records via the communication port.
		? Off	

55_CommLoss

Starter behavior if communication is down for at least 10 s.

Response if communication is down:

55_CommLoss		= Ignore (default)	Disables communication port watchdog.
		? Dropout	To acknowledge, press the **ENT** button or send a command via the bus. (Register 704-bit 3)
		? Trip	This requires a manual **reset**.
		? Warning	Communication loss triggers a warning. The warning disappears once communication is restored.

Sub-program 6_Module

At a Glance

The **6_Module** sub-program is used to configure the module that reads and writes in the multifunction control unit registers.

Each function may be **modified** in any mode.

The module may be configured:
- either directly by keying in the codes,
- or remotely, by using the RS 485 serial communication port (see *RS 485 Serial Communication Port, p. 105*).

See the documentation for each module for the code definitions.

6_Module

The current function is displayed on the second line of the display unit:

Sub-prog. ***(line 1)***		**Function** ***(line 2)***
6_Module		61_ID Clear 62_Reference 63_ID Set 64_Param dec 65_Param hex

61_ID Clear

Used to reset the module identification number while disabling the 'watchdog' function:

61_ID Clear		= Yes (default)	Module identification number reset.
		? No	

62_Reference Used to display the commercial references for the module as written by the module in the multifunction control unit registers (**read only**):

62_Reference		Module ID = 0	Module identification code (line 2). "**ID = 0**" indicates no module, or unidentified module.
		Catalog ?	Module reference (line 2). If "**ID = 0**" ==> the module reference is replaced by "**?**".
		Firmware Rev: 0.00	Module firmware version number (line 2). If "**ID = 0**" ==> the firmware version is replaced by "**0.00**".

63_ID Set Used to define the module identification code in the multifunction control unit to provide the monitoring and configuration functions:

63_ID Set		= 0 (default)	Identification code can range from 0 to 255, by increments of 1.

64_Param dec Used to configure a parameter list, numbered 1 to 10, in decimal format, corresponding to communication module registers 681 to 690.

==> This function defines the same parameters as **65_Param hex**.

64_Param dec		Parameter 1-10 = 00000 (default)	(line 1) Parameter number (1 to 10). (line 2) Decimal setting. ==> Parameters may be set from 00000 to 65535.

65_Param hex Used to configure a parameter list, numbered 1 to 10, in hexadecimal format, corresponding to communication module registers 681 to 690.

==> This function defines the same parameters as **64_Param dec**.

(6_Module) 65_Param hex		Parameter 1-10 = 0000 (default)	(line 1) Parameter number (1 to 10). (line 2) Hexadecimal settings. ==> Parameters may be set from 0000 to FFFF.

To set parameters 1 to 10 for the module, use either the **64_Param dec** function (decimal adjustment), or the **65_Param hex** function (hexadecimal adjustment).

Sub-program 7_Statistics

At a Glance

The**7_Statistics** sub-program is used to access the fault statistics saved in the multifunction control unit memory.

Each function may be **accessed** in the following modes:

- "**Off** " or "**Pause**" (LUCM)
- "**Ready**" (LUCMT).

The multifunction control unit records:

- **Trigger statistics**: information on the 5 most recent triggers (trigger type, average current, phase currents). This information is saved in the control unit just before power down.
  ==> Triggers caused by internal trips are not listed in the five most recent trigger events.
- **Trigger and off counters**: on, off, fault and trigger counter values since last reset.

Note: The **83_Rst stats** function is used to erase all statistics data.

7_Statistics

Current function is displayed on the second line of the digital display unit:

Sub-program *(line 1)*		**Function** *(line 2)*
7_Statistics		71_Trip0 72_Trip1 73_Trip2 74_Trip3 75_Trip4 76_Totals

71_Trip0 Last trip statistics:

71_Trip0		Type=xxxxxx (default)	Last trip type: (see*Fault Codes , p. 89*).
		FLA= xxx A	Displays **31_FLASet** immediately prior to trigger
		Therm= xxx%	Displays thermal capacity percentage.
		IAV= xxx A	Displays average motor current immediately prior to trigger.
		IL1= xxx A	Displays current L1 immediately prior to trigger.
		IL2= xxx A	Displays current L2 immediately prior to trigger.
		IL3= xxx A	Displays current L3 immediately prior to trigger.
		IGR= xxx A	Displays average ground fault current (IGR) immediately prior to trigger.

72_Trip1 Penultimate trip statistics:

72_Trip1		The parameters displayed for this function are identical to those displayed for function 71_Trip0.

73_Trip2 Fault n-2 statistics:

73_Trip3		The parameters displayed for this function are identical to those displayed for function 71_Trip0.

74_Trip3 Fault n-3 statistics:

74_Trip4		The parameters displayed for this function are identical to those displayed for function 71_Trip0.

75_Trip4 Fault n-4 statistics:

75_Trip5		The parameters displayed for this function are identical to those displayed for function 71_Trip0.

76_Totals

Statistics for all start, run and fault events:

76_Totals		Nbstarts	Number of starts.
		Auto Resets	Number of automatic resets.
		Shunt Trips	Number of triggers.
		ONhours	Number of hours in "On" mode
		SC Trips	Number of short circuit trips.
		MagTrip	Number of magnet trips.
		OL Trips	Number of thermal overload trips.
		GF Trips	Number of ground fault trips.
		Imbal Trips	Number of phase imbalance/phase loss trips.
		Jam Trips	Number of jam trips.
		UndrLd Trips	Number of underload (idle) trips.
		LongSt Trips	Number of long start trips.
		Comm Trips	Number of communication loss events on the RS 485 serial port.
		IntFlt	Number of internal multifunction control unit trips,
		OL Warns	Number of thermal overload warnings.
		Mod ID	Number of module ID trips (eg: incorrect ID or no module).
		Mod Int	Number of internal module trips.
		Mod Trp	Number of module trigger trips.
		Mod Drp	Number of module off trips.
		Statistics	END

Sub-program 8_Password

At a Glance

The **8_Password** sub-program is used to prevent unauthorized persons from configuring the multifunction control unit.

Each function may be **modified** in the following modes:

- "**Off**" or "**Pause**" (LUCM)
- "**Ready**" (LUCMT)

The ex-factory password (**0000**) inhibits password properties.

Passwords can range from 0001 to 9999.

This sub-program can also be used to **reset** the multifunction control unit (restore ex-factory values for the configured functions and history).

8_Password

The current function is displayed on the second line of the display unit:

Sub-prog. ***(line 1)***		**Function** ***(line 2)***
8_Password		81_Unlock 82_Lock 83_Rst Stats 84_RstToDfts

Password Lock and Unlock

To lock the code, initially, use the **82_Lock** function. Enter the code then confirm (2 entries). **DONE** is displayed.

Several options can be used to unlock the code:

1. Do you wish to unlock the code permanently?

Go to **82_Lock** where the HMI displays **Passwd? 0xxx**. Type in your code. The HMI will then ask you **New PSW? 0xxx.** Enter**0000** then **ENT**. Validate by re-entering **0000** then **ENT**). **Done** is displayed.

The **82_Lock** function must be used to relock the code.

2. Do you wish to unlock the code temporarily?

You may use one of two options:

- if a code has already been entered in **82_Lock**, either go to **81_Unlock**, which displays **Passwd? 0xxx.** Enter your code: "**Logged On**" will be briefly displayed,
- or go directly to the parameter you want to modify, where the HMI will ask for the code: **Passwd? 0xxx**. Enter your code: "**Logged On**" will be briefly displayed, You are then free to modify any other parameter, as long as you do not exit the **Main Menu** program.

The code is automatically re-locked if:

- you exit the **Main Menu** by pressing **ESC** several times, or

- you do not press a key for more than 30 seconds, or

- you switch off the control unit, or

- on a LUCM, on a LUB../LUS.. base, the auxiliary power supply and A1/A2 are down.

81_Unlock

This function disables the password security system. The **82_Lock** function must be disabled before any parameter changes can be made on the multifunction control unit.

81_Unlock		Passwd? (0001 - 9999)	This function resets the unlocking sequence. The multifunction control unit displays **Passwd?**. ● Select first digit (0 to 9), using the ▲ / ▼ keys. ● Press **ENT** to confirm the first digit and move on to the second. ● Repeat the same sequence for the second, third and fourth digits. ● Once you have pressed **ENT** to validate the fourth digit, the parameters can be changed.

82_Lock

Used to enable the multifunction control unit password security system. Password set to **0000** invalidates all function properties.

==> Current password (only when set to 0000) can be modified via the Modbus RS 485 communication port.

82_Lock		New PSW? (0001 - 9999)	The Activate password function initializes the locking sequence. The multifunction control unit displays **New PSW?**. ● Select first digit (0 to 9), using the ▲ / ▼ keys. ● Press **ENT** to confirm the first digit and move on to the second. ● Repeat the same sequence for the second, third and fourth digits. ● Once you have pressed **ENT** to validate the fourth digit == > the multifunction control unit displays **Confirm••••**. ● Re-enter the four digits as above. *==> Once the configuration has been secured, control and command functions can only be displayed.*

83_Rst Stats

Used to reset all counters and fault histories (see **7_Statistics**).

==> No history value may be restored once this function has been validated. It is therefore recommended you save all history data beforehand.

==> Switching off the multifunction control unit will not reset the counters.

83_Rst Stats		= No (default)	Disables history reset.
		? Yes	Enables history reset and erases history.

84_RstToDfts

Restores default factory parameter settings for the multifunction control unit. Also resets statistics.

This function returns the user to the **Config Menu** program.

==> No settings can be restored once the function has been validated. It is therefore recommended that you use an external device to save all settings prior to use.

84_RstToDfts		= No (default)	Disables return to default settings.
		? Yes	Enables return to default settings, and resets all parameter sensitive functions to ex-factory values and resets history.

Start-up Phase

Presentation

The start-up phase is the time it takes for the motor to reach nominal load current after A1/A2 power up.

The duration of the start-up phase can be adjusted by using the **410_LongStrt** function, and is used to set the initial security function time lag: **47_PhaseImb**, **48_Jam** and **49_UnderLoad**.

Beginning of the Start-up Phase

The **beginning of the start-up phase** depends on the type of control unit in use.

- **Beginning of an LUCM start-up phase**
  Occurs whenever the power poles are closed. Conditions required for the beginning of the start-up phase: the A1/A2 terminals must be powered up, the system must not be in "Pause" mode and no fault detected.
  While the A1/A2 terminals are powered up, the beginning of the start-up phase occurs after each fault reset or as soon as the "Pause" mode is disabled.
  ==> A new start-up phase beginning is only possible if the power poles have been opened then closed, whatever the state of the power supply for the base.
- **Beginning of an LUCMT start-up phase**
  Occurs every time an average current of more than 10% of FLA is detected. Whenever average current value falls below 5% of FLA in the absence of a fault, the LUCMT control unit moves to "Ready".
  No start-up will be detected, even when current is above the 10% threshold, if average current has not previously fallen below 5%.

End of Start-up Phase

The **end of the start-up phase** depends on different situations:

- If **410_LongStrt** is **disabled**:

Current exceeds threshold value, then falls below it before timeout *(see case no. 1)*.

Current exceeds the threshold value, and is still above threshold at timeout *(see case no. 2)*.

Current has not exceeded threshold value before timeout *(see case no. 3)*.

- If **410_LongStrt** is **enabled**:

same principle as when Long start is disabled, but the FLA threshold and timeout are not preset:

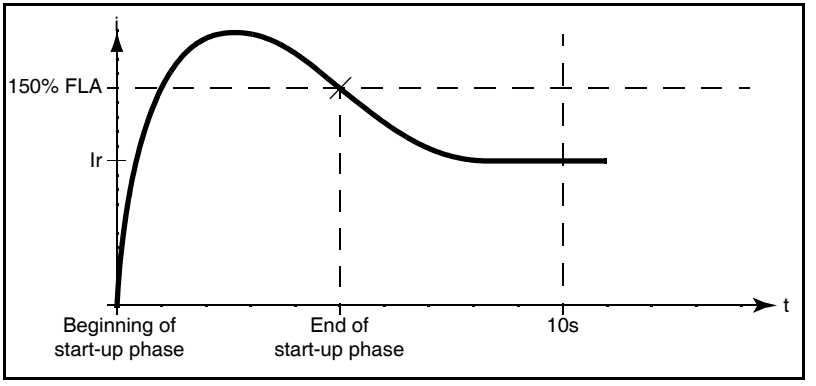
- The current threshold can be adjusted between 100 and 800% of FLA (150% default value)

- The trigger setting can be set between 1 and 200 seconds (10 s default value)

End of Start-up Phase (Case No. 1)

When the start-up current falls below the 150% of FLA threshold:

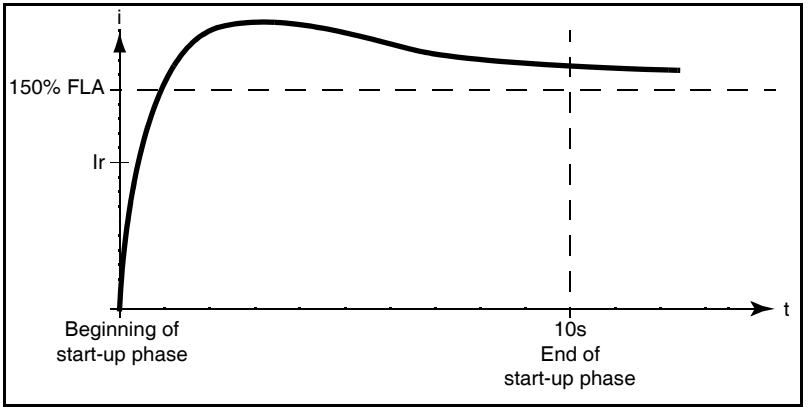
- **if** the **Trip** or **Warning** parameters on **410_LongStrt** are **disabled**,
- **and if** current is above the 150% of FLA threshold,
- **and if** the time lag since Beginning of start-up is below 10 seconds.



End of Start-up Phase (Case No. 2)

When current level falls after the 10 seconds time lag:

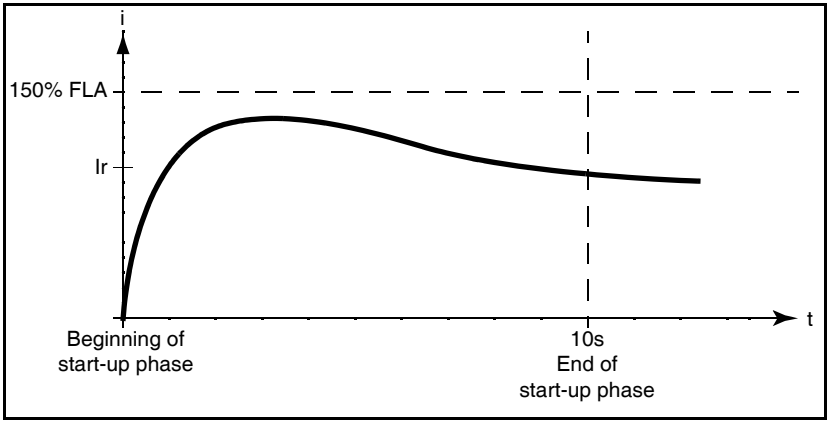
- **if** the **Trip** or **Warning** parameters on **410_LongStrt** are **disabled**,
- **and if** current is above the 150% of FLA threshold and remains at that level.



End of Start-up Phase (Case No. 3)

When current level falls after the 10 seconds time lag:

- **if** the **Trip** or **Warning** parameters on **410_LongStrt** are **disabled**,
- **and if** motor current never exceeds the 150% of FLA threshold.



Warning and fault management

4

At a Glance

Warnings and faults

Warning management describes :
- the "Warning" mode,
- the warning names and codes.

Fault management describes :
- the "Fault" mode,
- the fault names and codes.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Warning Management	86
Fault Management	88

Warning Management

"Warning" Mode

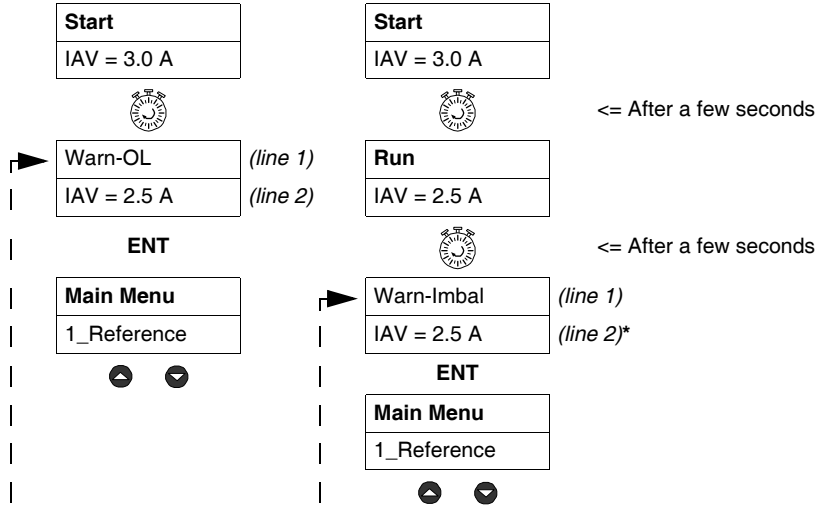
This mode only applies for warnings activated before the start-up phase:

- Overload, ground fault, and phase imbalance (activated with factory settings),
- jam, underload, and long start (parameters to set).

When a warning is triggered, **Warn** followed by the warning type is displayed on line 1. If a communication module is installed, the name is different.

Note: Once the timeout has expired, the corresponding warning type is displayed on line 1.

Using the **ENT** key, the user can move through the settings and check the **Warn Level** parameter value. The parameter setting may only be adjusted in "**Off**" mode.



Returns to current mode if no key is pressed for 30 seconds.

* *See "Run" mode, p. 38.*

Warning codes and names

During a warning condition, a warning code is displayed in the monitoring registers 460 and 461. The history register 116 contains the number of thermal overload warnings since the last reset.

Meaning of terms appearing on the multifunction control unit screen and corresponding codes:

Line 1	Comment	Code
Warn-GF	Ground fault warning	3
Warn-OL	Thermal overload warning	4
Warn-LongSt	Long start warning	5
Warn-Jam	Mechanical jam warning	6
Warn-Imbal	Phase imbalance warning	7
Warn-UndrLd	Underload (idling) warning	8
Warn-IntTmp	Warning on the internal temperature of the multifunction control unit	11
Warn-Comm	Warning of lost communication in the multifunction control unit (RS 485)	10
Warning M109	Warning of lost communication with the communication module	109
Off-ModID	Warning generated by the multifunction control unit (communication module not recognized or unsuccessful communications with the module)	12

Line 2	Comment
Fixed display (with factory settings) of the value of the average current (IAV) or loop with the parameters selected in the sub-program **2_Display**, during "**Run**" mode.	

Fault Management

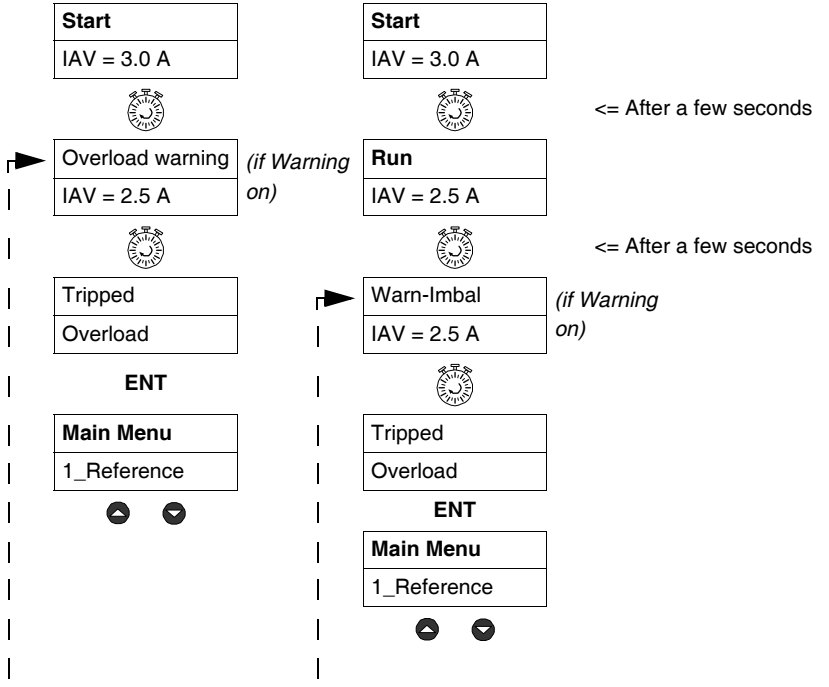
"Fault" Mode

This mode only applies when fault monitoring has been activated before the start-up phase:

- **Motor safety protection faults**, factory enabled. All such faults can be configured, except short-circuit.
- **Tests** designed to artificially trigger installation monitoring faults.
- **Internal or external faults** related to product environment (with or without a communication module, ...).

Fault occurs after timeout.

Using the **ENT** key, the user can move through the settings and check the **TripLevel** parameter value. The parameter setting may only be adjusted in "**Off**" mode.



Returns to current mode if no key is pressed for 30 seconds.

With **LUCM** multifunction control units, fault messages may only be viewed with a 24 V DC auxiliary power supply and acknowledgement of "**Off**" faults always results in a motor restart if power is still supplied from the A1/A2 terminals.

Fault Codes

A fault code is displayed in:

- Fault monitoring registers 451-452
- Fault history registers 150-157,180-187, 210-217, 240-247 and 270-277 (except for internal or external faults)

Fault Tables

The following fault tables specify:

- The type of associated multifunction control unit (LUCM, LUCMT)
- The fault code
- The fault name
- The type of associated reset mode (M=manual, R=remote, A=automatic)
- The keyboard display (lines 1 and 2)
- The type of reset action required of the user

Motor Safety Protection Faults

LUCM	LUCMT	Code	Fault	M	R	A	Line 1	Line 2	Action/Reset
√		1	Short circuit	√			Tripped	CC	Manual action
√		2	Over-current	√			Tripped	I>>	Manual action
√	√	3	Ground fault	√			Tripped	GroundFlt	Manual action
√	√	4	Thermal overload	√			Tripped	Over_load	Manual action
					√		Off-OL	Wait xxx then ENT to Reset	Remote or ENT
						√	Off-OL	Auto xxx	Automatic
√	√	5	Long start-up	√			Tripped	LongStrt	Manual action
					√		Off-LongSt	-	Remote or ENT
						√	Off-LongSt	-	Automatic
√	√	6	Mechanical jam	√			Tripped	Jam	Manual action
					√		Off-Jam	-	Remote or ENT
						√	Off-Jam	-	Automatic
√	√	7	Phase imbalance	√			Tripped	PhasImb	Manual action
					√		Off_Imbal	-	Remote or ENT
						√	Off_Imbal	-	Automatic
√	√	8	Underload (idling)	√			Tripped	UndrLoad	Manual action
					√		Off-UndrLd	-	Remote or ENT
						√	Off-UndrLd	-	Automatic

Tests

LUCM	LUCMT	Code	Fault	M	R	A	Line 1	Line 2	Action/Reset
√	√	10	Trigger test (remotely via communication bus or via the 32_TestTrip menu)	√			Tripped	TestTrip	Manual action
					√		Off-Test	Wait xxx then ENT to Reset	Remote or ENT
						√	Off-Test	Auto xxx	Automatic

Internal or External Environment-related Faults

This fault category includes:

- Communication faults
- Internal LUCM or LUCMT control unit faults
- Internal communication module faults
- Internal controller faults

Communication faults:

LUCM	LUCMT	Code	Fault	M	R	A	Line 1	Line 2	Action
√	√		RS 485 communication loss (value in menu 55)	√					
		12	... if "Tripped"		√		Tripped	CommLoss	Manual action
		11	... if "Off"			√	Off-Comm	ENT to Reset	Remote or ENT

Internal LUCM or LUCMT control unit faults:

No system trigger following internal fault display: faulty components may need changing.

LUCM	LUCMT	Code	Fault	Line 1	Line 2	Action/Reset
√	√	51	Multifunction control unit internal temperature	Int Trip	51	Check ambient temperature and distances (see *Service temperature, p. 17*) Manual action
√	√	52	Electronic fault	Int Trip	52	Replace multifunction control unit Manual action
√	√	53		Int Trip	53	
√	√	54		Int Trip	54	
√	√	55		Int Trip	55	
√	√	56		Int Trip	56	
√	√	57		Int Trip	57	
√	√	58		Int Trip	58	
√	√	59	Motor current detection, no power supply to coil in "Pause", "Fault" or "Off" mode	Int Trip	59	Check coil cabling Manual action
√	√	60	L2 current detected in monophase mode	Int Trip	60	Check L2 cabling (1-3) (error if 1-2 or 2-3) Manual action
√	√	61	Undetected base change	Int Trip	61	Manual action
√	√	62	Control cabling fault	Int Trip	62	
√	√	63	Coil control circuit over-voltage	Int Trip	62	
√	√	64	FRAM error	Int Trip	64	Replace multifunction control unit
√	√	EEPROM error	-	Int Trip	EEPROM error	Replace multifunction control unit

Note: Internal multifunction control unit faults are not saved in the fault history registers.

Internal communication module faults:

LUCM	LUCMT	Code	Fault	Line 1	Line 2	Action/Reset
√	√	M1xx	Internal communication module fault	Off-M1xx e.g.: Off-M15	ENT to Reset	*See relevant communication module user guide for more details.*

Internal controller faults:

LUCM	LUCMT	Code	Fault	Line 1	Line 2	Action/Reset
√	√	M2xx	Internal LUTM controller fault	Off-M2xx	ENT to Reset	*See relevant LUTM controller user guide for more details.*

Fault Acknowledgement

Motor can be restarted once fault has been eliminated and acknowledged. A timeout of several seconds may be required for some faults (overload, tests). See relevant tables.

Additional information

5

At a Glance

The following section describes the trigger and reset graphs, the Powersuite software workshop, and the technical specifications for LUCM and LUCMT control units.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Thermal trigger and reset graphs	94
Powersuite Firmware Workshop	101
Technical Characteristics	103

Thermal trigger and reset graphs

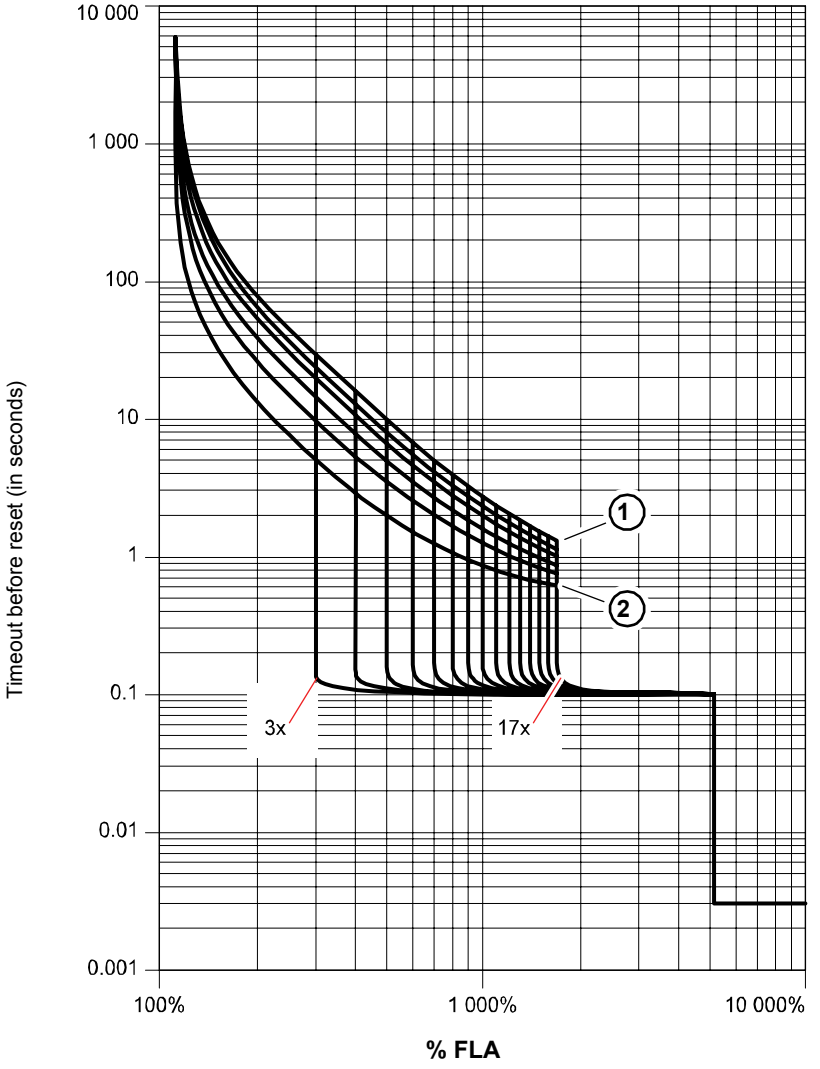
Thermal trigger graphs

The thermal trigger graphs are determined by the state of the motor:

- Hot motor (LUCM and LUCMT graphs differ)
- Cold motor (LUCM and LUCMT graphs differ)

Hot motor trigger graphs (LUCM)

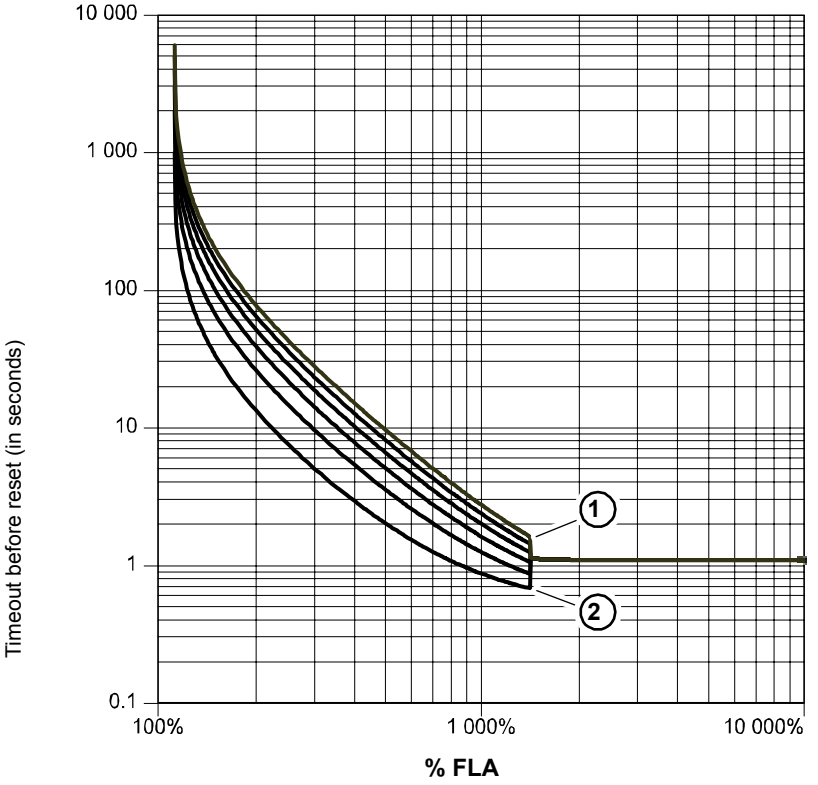
Reset timeout –hot motor - LUCM:



1 30_TripClass
2 TripClass 5

Hot motor trigger graphs (LUCMT)

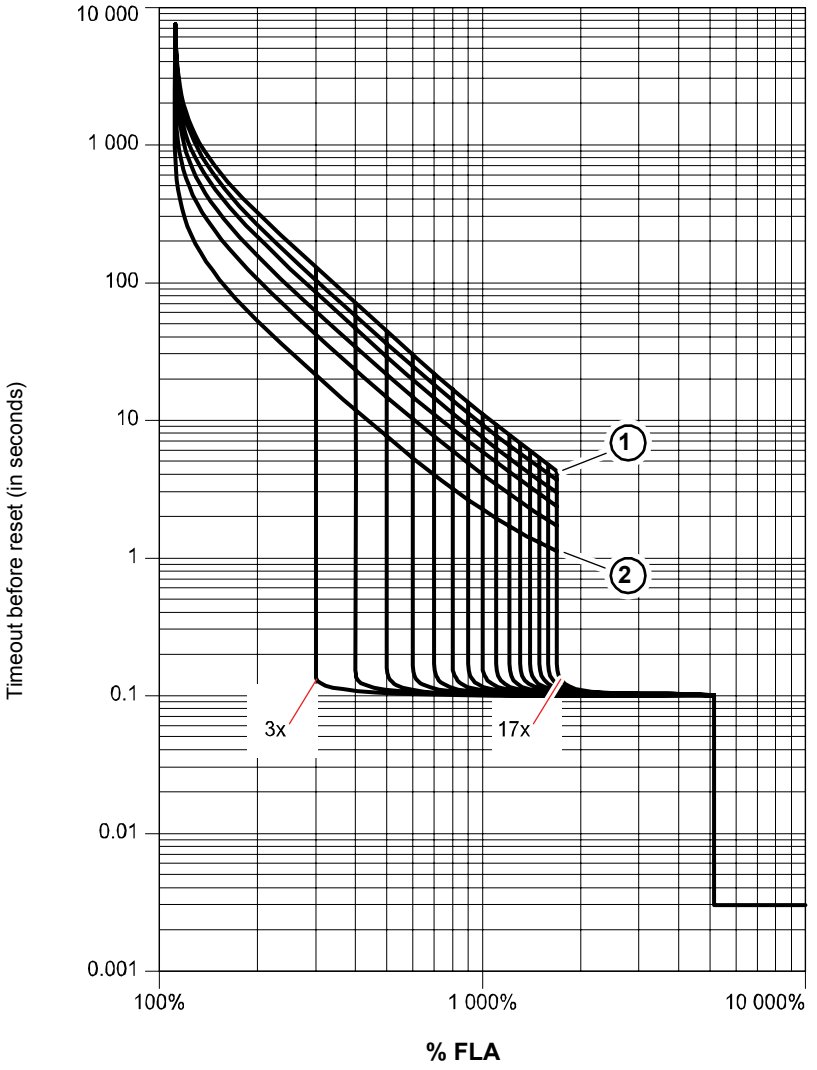
Reset timeout –hot motor - LUCMT:



1 TripClass 30
2 TripClass 5

Cold motor trigger graphs (LUCM)

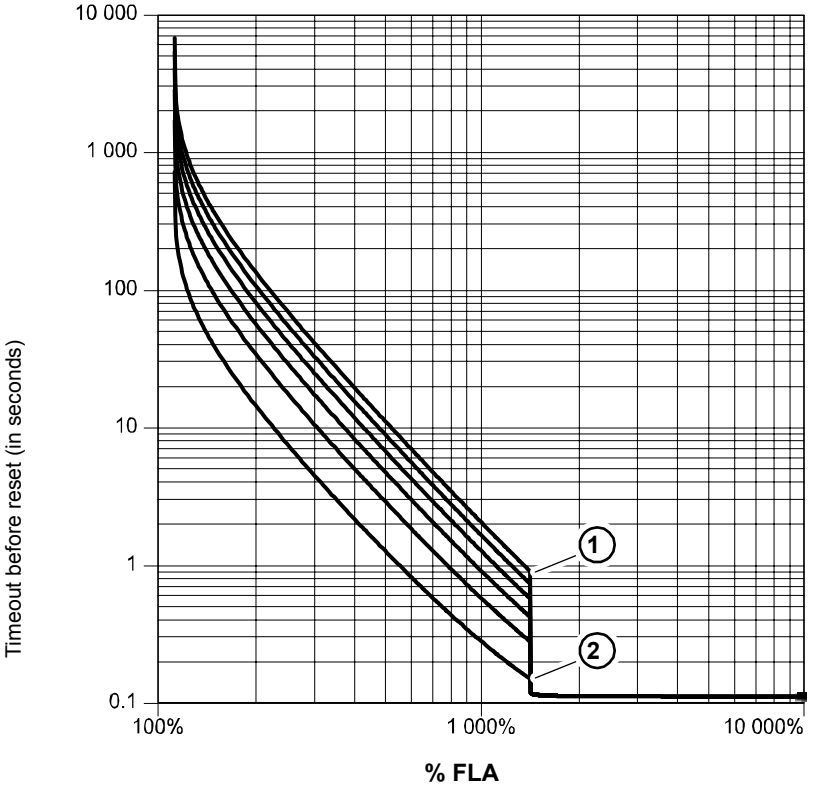
Reset timeout –cold motor - LUCM:



1 TripClass 30
2 TripClass 5

Cold motor trigger graphs (LUCMT)

Reset timeout –cold motor - LUCMT:



1 TripClass 30
2 TripClass 5

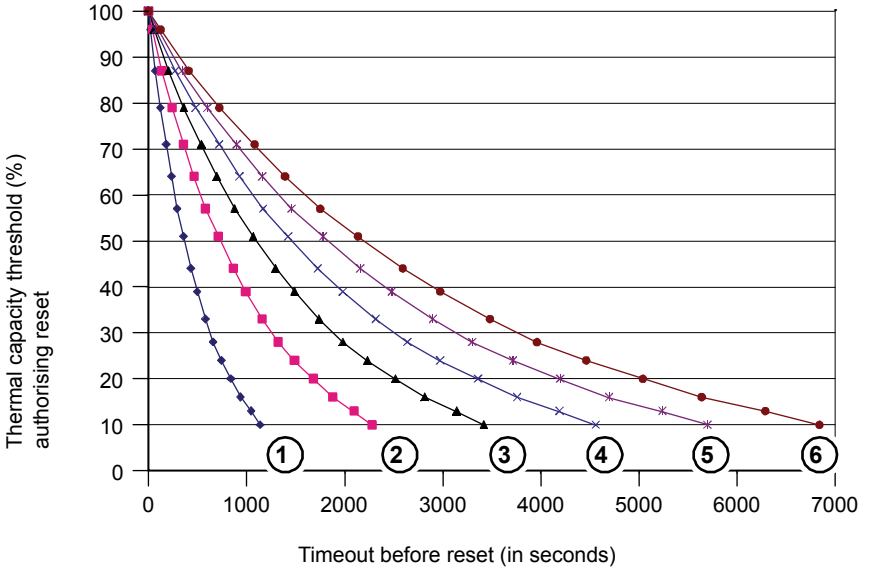
Reset graphs

Reset graphs differ according to motor type:

- Self-cooling motor
- Auxiliary fan-cooled motor.

Reset graphs – Self-cooling motor

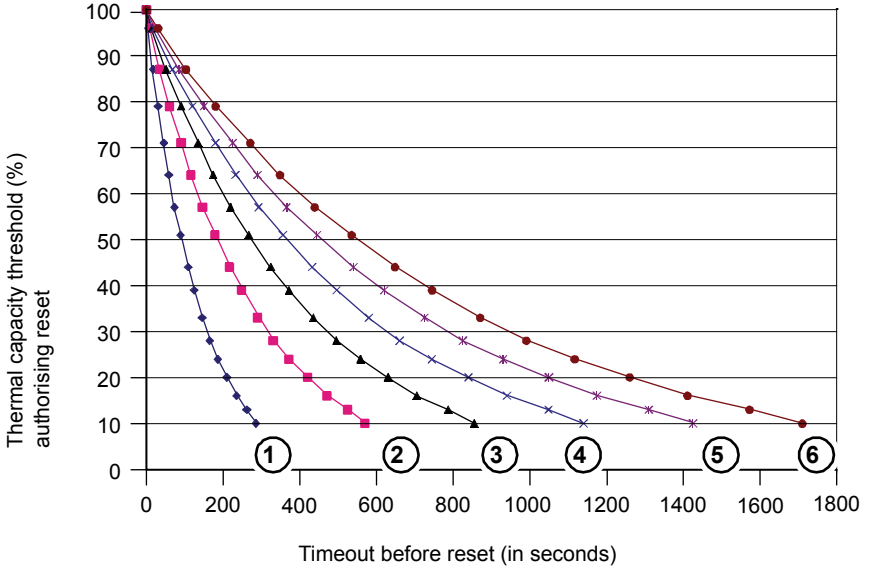
Reset timeout – motor without auxiliary fan:



1 TripClass 5
2 TripClass 10
3 TripClass 15
4 TripClass 20
5 TripClass 25
6 TripClass 30

Reset graphs – Auxiliary fan-cooled motor

Reset timeout – auxiliary fan-cooled motor:



1 TripClass 5
2 TripClass 10
3 TripClass 15
4 TripClass 20
5 TripClass 25
6 TripClass 30

Powersuite Firmware Workshop

Presentation

The Powersuite firmware workshop (version ≥ V1.40) is used to configure and commission the control unit via a PC in a Microsoft Windows 95, 98, NT4, 2000 or XP environment.

Use

The workshop may be used:

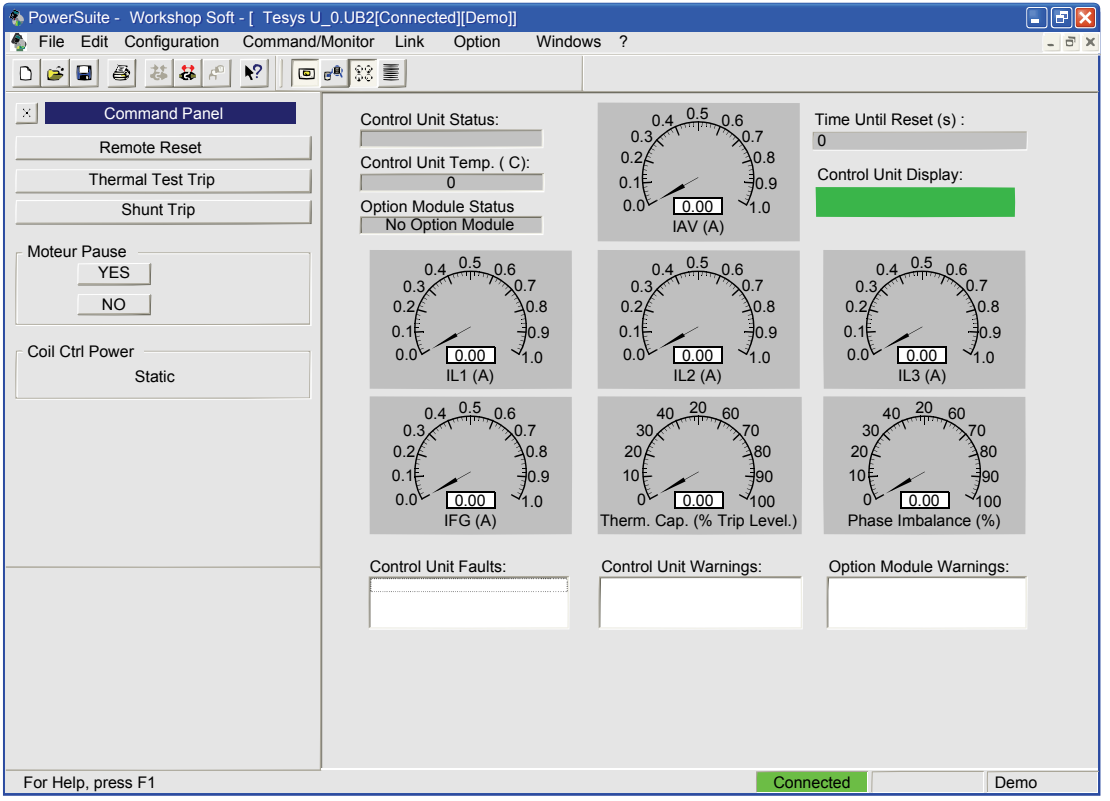
- **In standalone mode** to prepare and save configuration files for the LUCM control unit on various media (floppy disk, CD-Rom, hard disk, etc.).
  The configuration for the control unit may be printed out on paper or exported to standard office software.
- **Connected to the control unit Modbus port** to configure, adjust and set the various motor safety protection functions or to download a PC configuration file to or from the control unit.
  A control panel can be used to display the statuses and current values for the starter-controller. This serves as a user-friendly control panel, allowing the user to monitor the main features for the starter unit in real time:
  - thermal capacity
  - motor current average value and phase value
  - ground fault current
  - phase imbalance percentage
  - starter statuses and safety function warnings

HMI

The thermal overload and over-current protection test controls are available on the control panel.

The panel is also used to implement and display the control unit configuration, monitoring, status and command registers. Configuration register contents may be modified.

Typical Powersuite monitoring control panel:



Technical Characteristics

Types of Characteristic

The technical characteristics of the LUCM and LUCMT include:

- Environmental characteristics
- Characteristics of the RS 485 serial communication port using an RJ-45 connector

The specific technical characteristics of the LUCM include:

- Characteristics of the power circuit
- Characteristics of the auxiliary power supply circuit

Environmental Characteristics

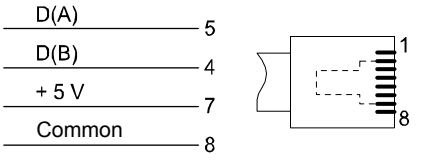
General characteristics of the LUCM and LUCMT multifunction control unit:

Certification			UL 508, CSA
Conformity to standards	IEC 947-4-1, IEC 34-11, IEC 755, VDE 0106, VDE 0660		
European Community directives	CE marking. Satisfies the key requirements of the low-voltage equipment and electromagnetic compatibility directives.		
Protection treatment			"TH" tropical finish
Protection level	According to IEC 60947-1		IP 20
	For LUCM: only when the power cabling of the Power base exceeds the following widths: 1.5 mm^2 (16 AWG) with end piece or 2.5 mm^2 (14 AWG) without end piece.		
Level of pollution	According to IEC 60664		3
Shock resistance	According to IEC 60068-2-27	10g open, 15g closed, 11 ms	
Resistance to vibrations	According to IEC 60068-2-6	2g open, 4g closed, 5 to 150 Hz	
Ambient air temperature near the device	Storage	- 35 to + 85°C (- 31 to + 185°F)	
	Operation (see *Service temperature, p. 17*).		°C -20 to +60 °F -4 to +140
Fire resistance	According to UL 94		V2
Maximum operating altitude		m ft	2000 6562
Operating position	Compared to the normal vertical mounting position. Front view of product: - 30° front-to-back rotation compared to vertical - 90° left or right rotation compared to horizontal		
Resistance to electrostatic discharge	According to IEC 61000-4-2 lev. 3	kV	8
Resistance to radiated fields	According to IEC 61000-4-2 lev. 3	V/m	10

Resistance to fast electrical transitions	According to IEC 61000-4-4 lev. 4	kV	4	
Resistance to dissipative shock waves	According to IEC 61000-4-5		Common mode	Serial mode
	Power circuit	kV	6	4
	Control circuit	kV	1	0,5
	Communication circuit	kV	1	-
Resistance to radio fields	According to IEC 1000-4-6 when **46_GroundFlt** + **TripLevel** is < 50% of minimum FLA			3
	According to IEC 1000-4-6 when **46_GroundFlt** + **TripLevel** is > 50% of minimum FLA			10
Voltage assigned to shock resistance (U imp)	According to IEC 60947-1	kV	2	
Resistance to disturbances due to low frequency harmonics	According to IEC 60947-2 Appendix F article F4.1			
Resistance to power line disturbance	According to IEC 61000-4-11			

RS 485 Serial Communication Port

Characteristics of the RS 485 serial communication port using an RJ-45 connector.

Electrical interface	RS 485	
Connector	RJ-45	
Connector pin-out RJ-45	Male connector, top view  	
Insulation	V	1 kV
Maximum line length	m (ft)	1000 m (3280 ft)
Maximum length of a shunt	m (ft)	20 m (65 ft)
Parity	None - 1 start bit, 8 data bits, and 1 stop bit (total 10 bits by default).	
	Even - 1 start bit, 8 data bits, 1 parity bit and 1 stop bit (total 11 bits)	
Connector	The **54_Control** function (Write enable) enables (On) or disables (Off) write access to the configuration registers of the multifunction control unit. When control authorization is "Off", write commands are limited to the following registers: ● Remote keyboard (register 1100) ● Multifunction control unit status (register 704) ● Multifunction control unit extended status (register 705) ● Communication module or option configuration (registers 680-690)	
RTU Modbus commands	RTU Modbus **query** codes supported: ● Code 03 (03 Hex) - Read multiple registers (maximum 100 registers) ● Code 06 (06 Hex) - Write to one register ● Code 16 (10 Hex) - Write multiple registers (maximum 100 registers) ● Code 65 (41 Hex) - Private identification query	
	RTU Modbus **response** codes supported: ● Code 03 (03 Hex) - Normal response to read multiple registers ● Code 06 (06 Hex) - Normal response to write one register ● Code 16 (10 Hex) - Normal response to write multiple registers ● Code 65 (41 Hex) - Response to a private identification query: { 0x01, '-', 0x01, '-', 'L', 'U', 'C', 'M', 'X', 'X', 'B', 'L', ' ', ' ', ' ', 0x00, 0x00, 0x00}) 'X', 'X': according to the reference of the multifunction control unit	
	RTU Modbus **exception response** codes supported: ● Code 01 - Illegal function ● Code 02 - Illegal register number ● Code 03 - Illegal data value (write command interrupted)	

Power Circuit (LUCM)

Characteristics of the power circuit of the LUCM multifunction control unit:

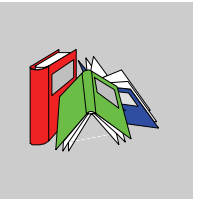
Range of usage voltage	Un	V	110 to 690 V AC
Voltage assigned to insulation (Ui)	According to IEC 947-1	V	690 V AC
Usage frequency		Hz	47-63
	For use with AC 110..690 V, 50..60 Hz motors. Not designed for use with DC motors. ● Certified for use upstream from variable-frequency drives ● Not certified for use downstream from variable-frequency drives		
Nominal usage current	LUCMx6BL	A	0.15 to 0.6
	LUCM1xBL		0.35 to 1.4
	LUCM05BL		1.25 to 5
	LUCM12BL		3 to 12
	LUCM18BL		4.5 to 18
	LUCM32BL		8 to 32

Auxiliary Power Supply Circuit (LUCM)

Characteristics of the auxiliary power supply circuit of the LUCM multifunction control unit:

Range of usage voltage		V	20.4 to 31.2 V DC
Voltage assigned to insulation (Ui)	According to IEC 947-1	V	250 V AC
Connection			
- Rigid or flexible wire	1 conductor	mm^2 (AWG)	0.2 to 1.5 (24 to 16)
- Flexible wire with end piece	1 conductor	mm^2 (AWG)	0.25 to 1.5 (24 to 16)
- Rigid wire	2 conductors	mm^2 (AWG)	0.2 to 1 (24 to 18)
- Flexible wire	2 conductors	mm^2 (AWG)	0.25 to 1.5 (24 to 16)
Tightening torque (auxiliary power supply)		N.m (lb-in)	0.5 to 0.6 (4.6 to 5.6)

Glossary



!

% Capacity Percentage of thermal capacity.

% FLA Percentage of motor current setting.

% IMB Percentage of phase imbalance.

E

Even (parity) 1 start bit, 8 data bits, 1 parity bit and 1 stop bit (total 11 bits).

F

FLA Motor current setting.

I

IAV Average motor current (L1 + L2 + L3 / 3).

IL1, 2, 3 Current L1, L2, L3.

M

Max FLA Maximum FLA range current.

Min FLA Minimum FLA range current.

N

None (parity) Start bit, 8 data bits and 1 stop bit (total 10 bits).

R

Reset threshold Lowest thermal capacity threshold required to authorize restart.

Reset time Timeout (in seconds) before reset after thermal overload trip.

T

Trip Any situation that trips the product and
- causes the terminals to open (LUCM),
- causes contacts 05-06 and 95-96 to open and contacts 97-98 to close (LUCMT).

Index

Numerics

1_Reference, 48
11_Catalog, 48, 49
12_Firmware, 48, 49
13_FLA Range, 48, 49
14_LoadType, 48, 49
15_AuxFan, 48, 49
16_Base, 48, 49
2_Display, 50
21_AvCurrent, 50, 51
22_ThermCap, 50, 51
23_L1Current, 50, 51
24_L2Current, 50, 51
25_L3Current, 50, 51
26_GFCurrent, 50, 51
27_LastTrip, 50, 51
28_PhaseImb, 50, 51
29_ONhours, 51
3_Setup, 52
31_FLASet, 53, 56
32_TestTrip, 54, 57
33_Pause, 55
34_Language, 55, 57
4_AdvSetup, 58
41_TripClass, 59
410_LongStrt, 70
42_ResetMode, 60
43_RstAdjust, 61
44_MagTrip, 62
45_Overload, 63
46_GroundFlt, 64
47_PhaseImb, 66
48_Jam, 68
49_UnderLd, 69
5_CommSetup, 71
51_Drop, 72
52_Baud, 72
53_Parity, 72
54_Control, 73
55_CommLoss, 73
6_Module, 74
61_ID Clear, 74
62_Reference, 75
63_ID Set, 75
64_Param dec, 75
65_Param hex, 75
7_Statistics, 76
71_Trip0, 77
72_Trip1, 77
73_Trip2, 77
74_Trip3, 77
75_Trip4, 77
76_Totals, 78
8_Password, 79
81_Unlock, 80
82_Lock, 81
83_Rst Stats, 81
84_RstToDfts, 81

A

AuxFan, 40, 42
AuxFan (1_Reference), 48, 49
Auxiliary fan-
    cooled motor, 98
Auxiliary power supply circuit, 106
AvCurrent, 40

B

Base
power, 40
Base (1_Reference), 48, 49
Baud, 72

C

Catalog (1_Reference), 48, 49
Class, 59
Code lock, 81
Cold
motor, 94
CommLoss, 73
CommSetup, 71
Configuration and monitoring, 12
Configuration during commissioning, 21
Connection, 18
Control, 73
CT_Ratio, 42

D

Default settings
LUCM, 22
LUCMT, 26
Description, 13
Display, 14
Display (2_Display), 50, 51
Display (Menu), 50
Distance to be maintained, 17
Drop, 72

E

Electrical supply, 20
ENT, 15
Environmental characteristics, 103
ESC, 15

F

Fault
CC, 89
code, 89
CommLoss, 90
GroundFlt, 89
I>>, 89
Jam, 89
LongStrt, 89
Over_load, 89
PhasImb, 89
TestTrip, 90
UndrLoad, 89
Fault codes, 89
Firmware (1_Reference), 48, 49
FLA Range (1_Reference), 48, 49
FLASet
for LUCM, 53
for LUCMT, 56
Functions
Diagnostic, 12
of the Config Menu program, 33
of the Main Menu program, 35
Protection, 11
Warning, 12

G

GFCurrent (2_Display), 50, 51
Graph
thermal trigger, 94
Ground fault, 64

H

Hot
motor, 94

I

ID Clear, 74
ID Set, 75
Imbalance, 66
Installation, 16
Interface, 33

J

Jam, 68

K

Keypad, 14
Keys on keypad, 15

L

L1Current (2_Display), 50, 51
L2Current (2_Display), 50, 51
L3Current (2_Display), 50, 51
Language, 40, 42
  for LUCM, 55
  for LUCMT, 57
LastTrip (2_Display), 50, 51
LoadType (1_Reference), 48, 49
Long Start, 70
LR Conf, 41, 45
LUCM05BL, 53
LUCM12BL, 53
LUCM18BL, 53
LUCM1XBL, 53
LUCM32BL, 53
LUCMX6BL, 53

M

Magnet trip, 62
Mode
  "Fault", 88
  "Run", 38
  "Warning", 86
  Off, 37
  Pause, 37
  Ready, 37
Module, 74
Motor
  1 ph (LoadType), 40
  3 ph (LoadType), 40
  single-phase motor, 40

N

New PSW? (82_Lock), 81

O

ONhours (2_Display), 51
Overload, 63

P

Param dec, 75
Param hex, 75
Parameter, 58
Parity, 72
Passwd? (81_Unlock), 80
Password, 79
Pause (LUCM), 55
PhaseImb (2_Display), 50, 51
Power circuit, 106
Power up
  initial, 36
  subsequent, 37
Powersuite, 101

R

Reference, 75
Reset
  automatic, 60
  Graph, 98
  manual, 60
  remote, 60
  settings, 81
  statistics, 81
Reset adjustment, 61
RS 485 serial communication port, 13, 105

S

Self-cooling
  motor, 98
SelfProtStr (Base), 40
Service temperature, 17
Starter (Base), 40
Start-up
  beginning, 82
  end, 82
Start-up phase, 82
Statistics, 76

T

TestTrip
for LUCM, 54
for LUCMT, 57
Three-phase motor, 40
Trigger timeout
46_Ground Flt, 64
46_GroundFlt, 64
47_PhaseImb, 67
48_Jam, 68
49_UnderLd, 69
Trip
410_LongStrt, 70
46_GroundFlt, 64
47_PhaseImb, 66
48_Jam, 68
49_UnderLd, 69
Trip Level
410_LongStrt, 70
Trip level
48_Jam, 68
49_UnderLd, 69
Trip Time
410_LongStrt, 70
TripTime Run
47_PhaseImb, 67
TripTimeStrt
47_PhaseImb, 66

U

Underload, 69

W

Warn Level
410_LongStrt, 70
46_Ground Flt, 65
47_PhaseImb, 67
49_UnderLd, 69
Warn level
48_Jam, 68
Warning
410_LongStrt, 70
46_GroundFlt, 65
47_PhaseImb, 67
48_Jam, 68
49_UnderLd, 69
code, 87
name, 87
Warning name
Off-ModID, 87
Warn-Comm, 87
Warn-GF, 87
Warn-Imbal, 87
Warning M109, 87
Warn-IntTmp, 87
Warn-Jam, 87
Warn-LongSt, 87
Warn-OL, 87
Warn-UndrLd, 87

You can download this technical publication and other technical information from our website at http://www.telemecanique.com.

Visit http://www.schneider-electric.com for your nearest Schneider Electric affiliate.

© 2008 Schneider Electric. All Rights Reserved.

03/2008